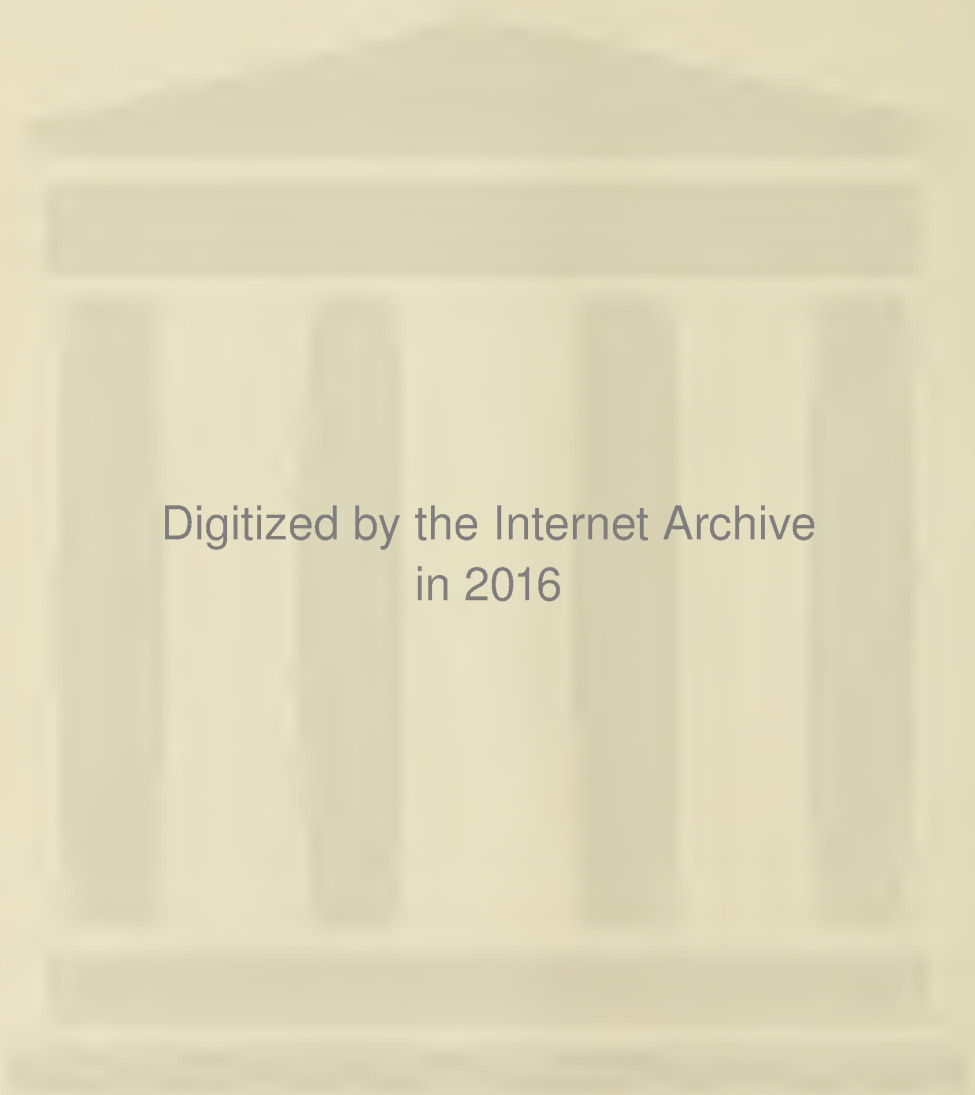


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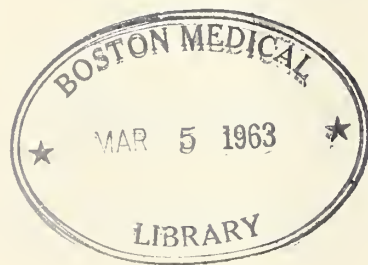
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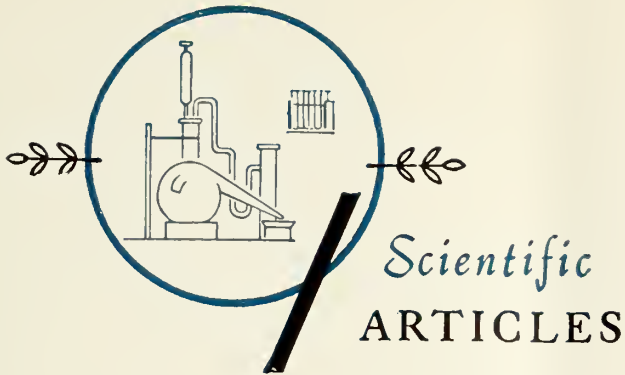
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Hypnosis

Its Use in General Practice

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ON SEPTEMBER 13, 1958, the J.A.M.A. through its Council on Mental Health, gave official recognition to hypnosis and sanctioned its use in the treatment and care of patients by qualified physicians. Since then there has been a steady increase in the number of doctors who have added hypnosis to their armamentarium of acceptable procedures for the diagnostic and therapeutic management of their patients.

However, the interns and residents that come to our hospitals fresh from the medical schools are still reluctant to accept hypnosis. Many of them have been indoctrinated with the idea that hypnosis is used mostly for symptom removal in psychosomatic patients. Their only previous experience with hypnosis has been received in classes on psychology or psychiatry. They frequently have been taught that symptom removal is a dangerous procedure that should be undertaken only after a full and detailed psychoanalytical background has been obtained. These interns and residents have had little or no experience in the practical application of hypnosis to patients suffering from organic pain or symptoms due to a pathological process. The same holds true for many practicing physicians. Therefore, the following case reports are presented to show the benefits that can be expected in fields other than psychiatry.

Postoperative Pain (Rectal Surgery)

Mrs. M. B., 43, white, female. Patient was first seen on the sixth postoperative day following a

Eliciting patient cooperation and expediting routine treatment of a variety of distressing, often painful, symptoms appear as advantages arising out of the experience of a physician's use of hypnosis in general practice.

hemorrhoidectomy. Her attending physician had released her from the hospital on the fourth day after the surgery. On the sixth day, she reported to the emergency room at Wesley Hospital in much pain and hysteria. She had not had a bowel movement since her enema on the third postoperative day; her attending physician was out of town. The patient was admitted on my service. A few minutes were spent explaining the state of hypnosis whereupon the patient agreed to accept it. Three minutes were spent securing a deep trance state or somnambulism. Five minutes spent securing complete relief of the rectal distress by the compounding of suggestions. The patient was then brought out of the trance with the suggestion that the relief would hold on. That evening the hospital nursing staff reported that she had a spontaneous, painless bowel movement of copious amount. Further that she was completely relieved of her distress. The patient tolerated a digital rectal examination with ease and with no discomfort. No narcotics or analgesics were used to aid the hypnosis.

Postoperative Pain (Abdominal Surgery)

Mrs. J. T., obese, white, female, 36, weight 213 pounds, height 5' 3". This patient was unable to accept or use hypnosis to aid her in weight reduction programs. She was completely resistant no matter how diligently induction techniques were applied. Several months later, when told that she would have to have an abdominal hysterectomy, the patient was able to reorient her thinking on the topic of hypnosis. Consequently, she was able to enter a deep trance. Post-hypnotic suggestions were given that there would be no pain, distress, nausea or vomiting after surgery. Following the hysterectomy, this patient received no narcotic medications. Early ambulation on the day of surgery was accomplished with ease and with no discomfort. The entire postoperative course was characterized by the smoothness and ease with which the patient passed through it.

Minor Surgery

Numerous lacerations have been sutured in the office and in the hospital emergency rooms with the patient in the trance state. In the majority of these cases, one should be able to secure the anesthesia on the part of the body desired quicker than the time it takes for the nurse to set up the tray for local injection, to inject the anesthetic, and wait for it to take effect. Minor fractures are manipulated and casts applied with the patients resting comfortably in a medium trance. Hypnosis is especially effective for the removal of ingrown toenails, as well as the cauterization of such benign skin tumors as warts and senile keratosis.

Waking Hypnosis

Waking hypnosis is so easily obtained that the office nurses often use it to secure local anesthesia at the site of the intramuscular or intravenous injections. It is particularly useful for the examinations of apprehensive and nervous patients. The use of waking hypnosis is of much help in the management of children who are more concerned with sparing themselves pain and distress, rather than looking for an opportunity to loudly manifest their recalcitrant egos.

Contact Dermatitis

The dramatic relief of pruritus in acute dermatitis can be illustrated by the following:

Miss B. H., 13, white, school child, appeared in the office with a generalized skin eruption from exposure to poison ivy. The patient was in a state of distress from frantic, uncontrollable pruritus. She had been under the care of another physician for the past three days and was on adequate dosages of steroids, antihistamines, sedatives and topical medications. She gave a history of extreme susceptibility to poison ivy,

and had suffered several previous episodes. Each episode in the past had incapacitated her for two to three weeks. The parents had brought her to my office in hope that hypnosis would be of aid in ameliorating the pruritus and shortening the convalescent period. The parents were advised to continue the medications and lotions already prescribed.

Deep somnambulism was easily and quickly induced within three minutes. The child was then given generalized suggestions for relief of anxiety and nervous tensions. Through the compounding of suggestions, complete relief of the pruritus was obtained. A post-hypnotic suggestion was given that this relief would persist and hold on for at least three days after she came out of the trance. The child was awakened and dismissed. The parents reported that the dramatic relief she achieved in the office did actually stay with the child, and she slept well with no sedation that night. Three days later when the patient reported to the office there was only a slight residual discoloration to mark the sight of the previous dermatitis.

Dermatitis Medicamentosa

Mr. R. S., 48, white, office clerk, appeared at the office in a state of moderate distress with frantic pruritus from a generalized drug eruption. The intense dermatitis was typical of a sulfa drug sensitivity. The patient had taken three tablets of a sulfa drug two days previously for a minor ailment. The man was in extreme agitation of uncontrollable pruritus. Somnambulism was rapidly induced and relief through the compounding of suggestions obtained. It was further suggested that this complete relief would stay with him. The patient was awakened and the complete relief was maintained. An injection of steroids was given and a prescription for antihistamines handed to him. The patient reported that as soon as he arrived home from the office he fell into a deep sleep of three hours that afternoon. The next morning the rash was gone and his relief still complete.

Asthma

For the old chronic asthmatics with pulmonary emphysema, hypnosis has little or no aid to offer. However, for the child in grade school or the teenager in high school, it is of tremendous benefit. Many of these cases have a strong element of nervous tension in their personality pattern as well as the underlying allergen-antigen factor. Quite a few of these children have already had the diagnostic skin tests followed by the usual courses of desensitization injections. Often, only a little relief has been obtained because not enough attention was directed to the part that nervous tension and panic can contribute to the asthma. The following case will illustrate:

Miss F. S., 15, white, sophomore in high school.

This girl gave a history of asthma during most of her childhood. At the age of ten, she had the diagnostic skin tests followed by two years of desensitization injections with no lasting improvement of note. She knew that her allergy was due to house dust, molds and certain plant pollens, but was unable to regulate her life to avoid them. The girl was brought to the office in a moderately severe asthmatic attack in hope that hypnosis would be of benefit. A trance state of medium depth was induced within three minutes. Approximately five minutes were spent securing the complete relief of the asthma by the compounding of suggestions. It was then suggested that this relief would persist indefinitely after she awakened. A final suggestion was given that she could abort or stop any future asthmatic attacks by repeating what she had learned at this session, e.g., auto-suggestion. The child has been asthma free for fourteen months. Occasionally, she will feel an attack of asthma developing but will quickly stop it by self-hypnosis or auto-suggestion.

Orthopedic Surgery

Mr. D. R., age 36, white, auto mechanic, first seen in Wesley Hospital on the eleventh postoperative day. The patient had a lumbar spinal fusion following removal of a herniated intervertebral disc. There was a severe wound infection with a profuse drainage of purulent material which on culture revealed a hemolytic *Staphylococcus*, coagulase positive. The patient was complaining constantly of his back pain. He had received a total of twenty-three narcotic injections as well as seventeen tablets containing a half grain of codeine each. The danger of narcotic addiction was definitely present. The first visit was spent inducing the state of somnambulism and leaving the patient with suggestions for the alleviation of fears and anxiety concerning his operation and the wound infection. The next day, after again inducing somnambulism, complete relief of the back pain was obtained with suggestion techniques. Further suggestions were given that the relief would hold on and persist as long as he was in the hospital; finally that he would not need any more narcotics by either mouth or injection. The patient remained in the hospital nine more days and had no more discomfort in his back, nor did he receive any more narcotics.

Multiple Fractures

Mrs. A. W., 53 year old, white, female. Admitted to the orthopedic ward at St. Joseph Hospital following an auto accident. She had multiple fractures with gross over-riding of the fragments of eight ribs on the right side. The right clavicle presented a fracture with displacement and over-riding of the fragments. A fractured right ulna was also present.

The attending physician asked me to see her on the third hospital day. The patient was still in severe pain, even though she was receiving adequate dosages of narcotic injections. The nurses had been unable to move her off her back to change the bed sheets. Hypostatic congestion and atelectasis were present in the right lung. The patient readily agreed to try hypnosis. The induction of a deep trance was accomplished within a few minutes. Relief of the pain and distress attained by the usual compounding of suggestions. The patient was then able (with support of her good left arm) to get out of bed and walk over to the chair and remain there while the nurses changed her bed. Suggestions were given that she would have a much better day, get much more relief from any injections given her and perhaps be feeling well enough to go to surgery the next day.

The next morning (again in a deep trance) she was taken to surgery and the necessary casts and braces applied, with no narcotics or anesthesia other than hypnosis being used. The patient was aware at all times of what was being done, but was unable to perceive or recognize pain while in the deep trance.

Acute Bursitis and Sprains

Another satisfactory use of hypnosis in general practice has been its ability to alleviate the acute spasm of sprained muscles, joints and acute bursitis. The effects are dramatic. The procedure in these cases has been to induce the deep trance state. A description of a mental picture is given; one that describes in detail the injection of a local anesthetic into the involved tissue. The patient immediately experiences relief of the distress. A suggestion is given that the relief will hold on for a certain length of time and the patient awakened. Hypnosis is very effective when used for these conditions. The rationale for its use in such cases is the same as that offered by advocates of early ambulation and mobilization.

Obstetrics

The use of hypnosis in obstetrics has already been well established and needs no case reports here to substantiate it. However, there is still a feeling prevalent that it often takes too much of the physician's time. Actually this need not be so. The induction procedures and suggestions for management of uterine contraction are recorded on tapes. The patient spends a few minutes at each pre-natal office visit listening to the tapes and acquiring proficiency in the techniques of auto-hypnosis. By the final two or three weeks of pregnancy, the patients who have developed the desire to really have their delivery under hypnosis are given one personal session during which they are taught how to develop the regional anesthesia necessary. In my practice the percentage of mothers hav-

(Continued on page 8)

Macroglobulinemia

Clinical Case Followed for Six Years With Discussion as to Differential Diagnosis

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IN 1944 WALDENSTRÖM reported three cases of what he described as "incipient myelomatosis, with hyperglobulinemia and fibrinogenopenia." His cases manifested a refractory anemia, a bleeding tendency, and a serum of high viscosity, with proteins which were of high molecular weight. He designated these proteins as macroglobulins. Since his initial recording a number of cases of primary macroglobulinemia have been reported, most of them in the European literature. In addition, instances of secondary macroglobulinemia in association with other disease entities have been noted with increasing frequency.²

We recently encountered a case of macroglobulinemia which we thought was of considerable interest. First, because of the relative rarity of this disorder, and second, because the patient had been followed for six years with the diagnosis of multiple myeloma before the true nature of his problem was appreciated. The case is herein reported.

Case Report

FIRST ADMISSION: This 62-year-old white male businessman was admitted to Chicago Wesley Memorial Hospital in November 1953 because of urinary frequency and urgency, dysuria, and hematuria. He also had a recurrent fever and for two months prior to admission had noted intermittent diarrhea and general myalgia. He had no past history of bleeding episodes, weight loss, or back pain; and only recently had noted some general weakness and fatigue. A protein determination two years prior to admission had shown a hyperglobulinemia of unknown magnitude.

On admission to the hospital his temperature was 102.4 degrees Fahrenheit, the blood pressure 138/90 and the pulse 82. The chest was clear and there was no significant lymphadenopathy or hepatosplenomegaly. The neurological examination was within normal limits.

The laboratory examination at this time did reveal some abnormalities. The hemoglobin was 10.8 gm.

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The report of a patient with "primary" macroglobulinemia, followed for six years, is herein presented. The clinical, biochemical, pathologic and hematologic findings are compared with other cases reported in the literature.

The evidence would seem to suggest that macroglobulinemia could possibly be a non-specific reaction to unidentified injury-stimulation of the reticulo-endothelial system especially the plasma cell-lymphocyte series, and is not a discrete entity per se. Whether this patient is in reality a case of multiple myeloma with macroglobulinemia, primary macroglobulinemia or a lymphosarcoma with macroglobulinemia can be answered only by continued observation.

per cent (Sahali method), and the red count 3,400,000/mm³ with a hematocrit of 33.5 per cent. The white blood count was 8,600/mm³ with a differential of 61 polymorphonuclear leukocytes, 26 lymphocytes, 9 monocytes, 3 band cells and 1 metamyelocyte. The platelet count was 410,000/mm³. Multiple urine specimens revealed a fixed specific gravity of 1.010 and large amounts of protein (80 to 200 mg. per cent). Tests for Bence-Jones protein in the urine were negative. There were numerous leukocytes present on microscopic examination. The NPN was 15 mg. per cent, the A/G ratio showed an albumin of 3.76 grams and a globulin of 5.46 grams; the thymol test, alkaline and acid phosphatase, Van den Bergh, calcium and phosphorous determinations were all within normal limits. A congo red test was normal. A BSP test showed 3.6 per cent retention in 45 minutes.

A bone marrow aspiration revealed a hyper-cellular specimen with a definite increase in plasma cells (9 per cent) and lymphocytes (24 per cent). The plasma cells were noted to occur in sheets and clusters. Erythropoiesis was normoblastic and megakaryocytes were adequate. The picture was felt to be compatible with an early stage of multiple myeloma.

A chest x-ray demonstrated a healed reinfection type tuberculosis involving both upper lung fields. A radiologic skeletal survey was normal.

The urinary tract infection was treated with a sulfa preparation and the urine became free of leukocytes although the proteinuria continued. The temperature decreased to normal, the patient improved and was discharged on the eleventh hospital day with the diagnoses of: (1) Acute and chronic pyelonephritis, and (2) Multiple myeloma.

SECOND ADMISSION: Readmission two months later was for further hematologic evaluation. He felt well at this time, had gained 14 pounds, and there were no significant symptoms. Physical examination and laboratory studies were essentially unchanged.

THIRD ADMISSION: The patient returned to the hospital in June of 1956 for re-evaluation. He had felt well in the intervening three years. There had been no weight loss, fever, chills, bleeding episodes, or back pain. Six months prior to admission he had developed a macular rash for which Prednisone 30 milligrams per day for 10 days had been prescribed, with good results.

Physical examination was still within normal limits.

The laboratory studies failed to reveal any important changes from those obtained at the first admission. Serum globulins were 6.70 gm. per cent and the albumin was 3.01 gm. per cent. A sternal marrow aspiration revealed large numbers of mature appearing plasma cells and a concomitant increase in small lymphocytes.

FOURTH ADMISSION: The patient was re-examined in February of 1959 after an absence of two years. During the interim he had lost 30 pounds and had noted the onset of general fatigue and malaise. Several bouts of pneumonia had been sustained. Prednisone and ACTH as well as six blood transfusions had been given since his last admission. He had been experiencing a fleeting type of pain involving the hands and soles of his feet, but bone pain per se was not present. A chronic maculopapular eruption had developed over the forehead and right side of the abdomen.

The physical examination revealed pallor for the first time. Significant peripheral lymphadenopathy or hepatosplenomegaly were not present. The fundoscopic examination was within normal limits.

The hematocrit was 30 per cent and the hemoglobin was 10.4 gm. per cent, with a white count of 7,050/mm³. There were 42 segmented neutrophils, 51 lymphocytes and 7 monocytes. The sedimentation rate was 58 mm. in one hour (Wintrobe). The urine was without protein or other abnormal findings. The total serum protein was 10.72 gms. per cent with 2.10 gm. per cent of albumin and 8.62 gms. of globulin. The BUN was 22 mg. per cent. The fibrino-

gen was 0.158 gms. per cent. The uric acid was 5.35 mgs. per cent. The alkaline phosphatase was 0.66 Bodansky units. A third marrow aspiration resulted in a "hypercellular specimen with good preservation of erythropoiesis and granulopoiesis but an extensive infiltration by plasma cells and lymphoid plasma cells was present." A cell block made up of the marrow revealed plasma cell hyperplasia. A serum electrophoresis (paper) showed a marked elevation in the globulin fraction (*Figure 1*). The Sia watertest for macroglobulins was strongly positive. Ultracentrifugal studies of the serum at Northwestern University Medical School revealed a pattern "typical" of macroglobulinemia (*Figure 2*). Adrenal steroid treatment was continued after discharge.

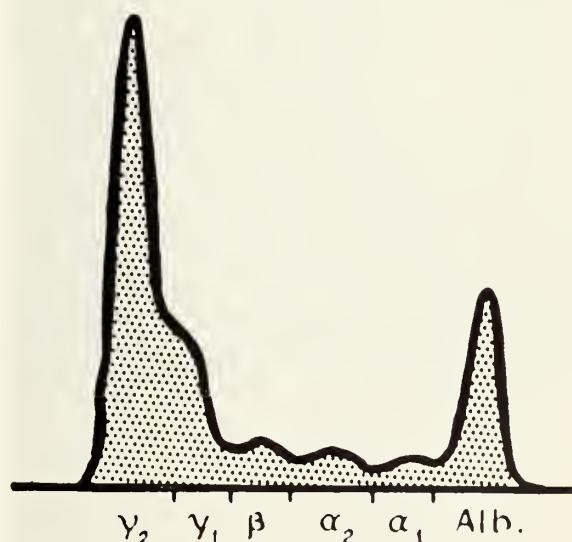


Figure 1. Electrophoresis (paper) of patient's serum showing hypoalbuminemia and a tall peak at the mobility of gamma globulin.

FIFTH ADMISSION: The patient was readmitted to Chicago Wesley Memorial Hospital in June of 1959 because of fatigue and vertigo, with a history of excessive bleeding following a tooth extraction two weeks previously. The neuritic pains of his hands and feet had become more severe.

Physical examination disclosed the liver to be palpable for the first time, 3 cm. below the right costal margin with a firm nontender edge, and there were a few small cervical and axillary lymph nodes which were firm and nontender. A "stocking" anesthesia to the mid-calf region was present bilaterally but there were no other abnormal neurological findings.

The hematocrit was 24 per cent, the white blood count was 7,500/mm³ with 58 per cent lymphocytes, and the platelets were present in adequate numbers.

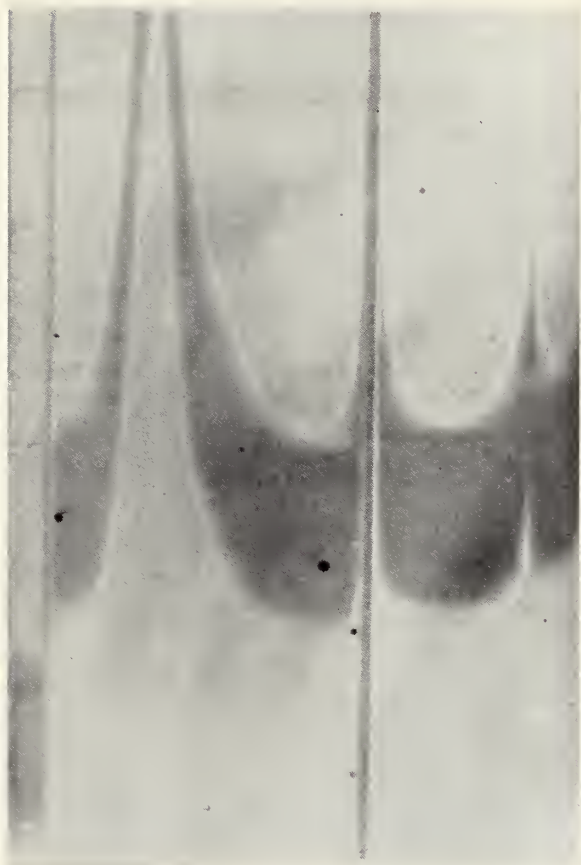


Figure 2. Ultracentrifugation pattern of the patient's serum with macroglobulin peaks to the right of the normal serum proteins.

A radiographic skeletal survey revealed no osteolytic lesions.

After three blood transfusions the patient was returned to the care of his local physician. Two years later his condition was reported as "unchanged."

FINAL DIAGNOSES: 1. Primary Macroglobulinemia; 2. Peripheral Neuropathy.

Discussion

CLINICAL PICTURE: This case demonstrated many features common to "primary" macroglobulinemia. This disorder characteristically occurs in elderly white males and is accompanied by non-specific symptoms and findings.³ The onset is usually insidious and the most common manifestations are fatigue, weakness, weight loss, bleeding episodes, peripheral edema and vasomotor insufficiency. Bone pain is conspicuously absent. Recurrent infections have been reported in a few cases due to actual or "functional" hypogammaglobulinemia.⁴

Physical examination may show pallor, hemorrhagic manifestations (epistaxis, petechiae, ecchymoses, retinal, central nervous system, or gastroin-

testinal bleeding), a painless lymphadenopathy, hepatosplenomegaly, distention and tortuosity of the retinal vessels and multiple retinal hemorrhages, and edema.

Laboratory findings include a normocytic normochromic anemia, which may be marked, extreme elevation in the erythrocyte sedimentation rate and commonly rouleaux formation. The white blood cell count may be normal, increased, or decreased, and in any case there is no characteristic pattern to the differential count, although a lymphocytosis is common. Elevated bilirubin levels and intravascular hemolysis are occasionally present.^{4, 5} Bence-Jones proteinuria may be found and severe hypoalbuminemia may accompany the usual hyperglobulinemia. Cryoglobulins have been described as occurring in cases of macroglobulinemia.² As can be seen, our case eventually developed symptoms, physical findings, and laboratory features typical of macroglobulinemia. The serum albumin was low and the repeated pulmonary infections suggest that there was a decrease in normal gammaglobulin with a decrease in the production of antibodies.

A number of reasons are advanced for the bleeding manifestations in cases of macroglobulinemia, however, no consistent cause has yet been demonstrated. There are reports of abnormal bleeding, clotting, and prothrombin times.^{1, 2} Platelets may be found quantitatively and qualitatively deficient.⁶ Decreased ACGlobulin and factor VII levels have been reported.^{2, 7} Fibrinopenia and an interference with the conversion of fibrogen to fibrin by the abnormal protein have also been encountered.⁸ The defect responsible for the bleeding which occurred in our case was not determined.

Serum protein studies are necessary to confirm the diagnosis of macroglobulinemia. Electrophoresis reveals a tall, narrow peak which is most commonly seen in the gamma fraction, although it may occur elsewhere. Ultracentrifugation discloses large concentrations of macroglobulins, most of which have a sedimentation constant (S) of 19 to 20 (range 15-28S) and a molecular weight of about 1,000,000;² the findings in our case (Figure 2) were diagnostic. It now appears that increased amounts of macroglobulins may be detected by the use of chromatograms (DEAE cellulose) in conjunction with paper electrophoresis, and in this way primary macroglobulinemia may be differentiated from other hyperglobulinemias if ultracentrifuge studies are not available.

The Sia (water) test is a simple screening method for the presence of macroglobulins. This consists of the addition of several drops of serum to a test tube of distilled water, a positive reaction being the immediate formation of a heavy, cloudy, white precipitate. False positive and false negative results are seen,⁴ and this test should be judged accordingly.

X-ray examination of the bones may be normal or may show generalized decalcification, but no localized lytic lesions are seen.

The course of this disease is inconstant and although the outcome is invariably fatal, there may be a prolonged survival, as demonstrated by this case.

Pathology

The gross pathological findings in autopsied cases have not been remarkable. Hepatomegaly, splenomegaly, lymphadenopathy, osteoporosis, and diffuse reddening of the bone marrow were the most common abnormalities noted in 13 cases.¹⁰ Bone marrow specimens, obtained by biopsy, aspiration or autopsy are most often hypocellular. Increased numbers of mast cells, plasma cells and lymphocytes, occur in varying proportions in different cases.¹⁰ The abnormal cellular infiltration may be focal early in the course of the disease, as was true in the above reported case. The plasma cells may be mature or they may be "unripe" with large eccentric pyknotic nuclei. The lymphoid cells are usually small and may make up 90 per cent of the cells seen in the marrow. "Lymphocytoid" cells resembling transitional forms between lymphocytes and plasma cells have commonly been seen, both in the marrow and infiltrating other organs,⁵ and these cells are often quite fragile. Unsuccessful attempts at bone marrow aspiration are not unusual in this disease.

Microscopic examination of the spleen may show an increase in the number and size of the malpighian corpuscles; however, this is apparently not a universal finding.⁴ The enlarged lymph nodes may show destruction of the normal architecture and replacement by lymphocytes and/or mast cells, with the resultant picture resembling lymphosarcoma.³ The kidneys have been reported to show interstitial infiltration with lymphoid and plasma cells, and a "glomerulonephrosis," similar to that seen in myeloma, which has been attributed to parenchymal deposition of the paraproteins.¹

Etiology

It is here that most confusion exists and the least information is available. Waldenström thought that this disease might be due to a virus; however, this has never been substantiated. One current hypothesis¹¹ is that the basic cause is an enzyme defect in protein synthesis. This, too, needs further proof and the etiology is, at the present time, unknown.

Macroglobulins account for up to 5 per cent of the total serum proteins in normal individuals. In well documented cases of nephrosis, cirrhosis, disseminated lupus erythematosus, periarteritis nodosa, carcinoma of the lung, uterus and other neoplastic processes, macroglobulins may make up 15 per cent of the total serum protein. In cases of primary mac-

roglobulinemia the macroglobulins are usually more than 15 per cent of the total serum protein.¹¹ Recently developed immunological techniques are also supposed to permit the separation of primary and secondary macroglobulinemias on a qualitative basis as well.

It is quite possible that "primary macroglobulinemia" as such does not exist, and that these abnormal proteins are simply a result of injury to, or stimulation of, the reticulo-endothelial system and this disorder may be one of the "reticuloses." Certainly the diverse histopathologic findings associated with macroglobulins should raise the question as to whether or not this should ever be considered as a specific entity.¹²

In any case, it is assumed that the macroglobulin has its origin in the abnormal cells and it now appears that these macroglobulins are multiples of a protein unit of the same molecular size as normal globulins, and that these units are crosslinked by cysteine (disulfide) bonds.⁴ This may prove of some therapeutic importance. It is of interest that the percentage of carbohydrate in the molecules of these pathological macroglobulins has been found to be high.

Treatment

Therapy has, in general, been quite disappointing, even though the diagnosis of this disease usually implies a prolonged course. Steroids, antimetabolites, and radioactive substances, have failed to induce any consistent improvement in these patients.^{2, 11}

Several new methods of treatment may be promising. It has been suggested that penicillamine (Dimethylcysteine) be used. This substance could act as a donor of SH groups to break the cysteine bonds and disaggregate the macroglobulins. Another recently proposed form of therapy is intensive plasmapheresis. This has induced marked clinical and laboratory improvement in several cases, without complications. Both of these measures presuppose that the signs and symptoms are due to increased blood viscosity, and whether they will be of real value remains to be seen, particularly since these abnormal proteins are constantly being produced. At the present time treatment is limited to symptomatic measures to control the various complications such as bleeding, anemia, infections, azotemia, etc.

Conclusion

From all of the above, it is obvious that there are many aspects of this disorder which are not understood. The case presented is a very typical example of primary macroglobulinemia as currently defined. The clinical history and physical findings, the laboratory data, and the ultracentrifuge studies confirmed the diagnosis. Multiple myeloma was excluded only with some difficulty. Most commonly the problem in these

cases is to rule out leukemia, lymphosarcoma, myeloma or some other malignant process.

Ultracentrifugation is the best method of differentiating primary macroglobulinemia from multiple myeloma, since both may exhibit tall, narrow, sharp peaks in the globulin fraction of an electrophoretic pattern. Most myeloma proteins have a sedimentation constant of from 6.1 to 8.3 S, and a molecular weight of 120,000 to 300,000, although sedimentation constants of up to 17.5 S, and molecular weights approaching 1,000,000 have been registered in myeloma patients in several rare cases.² As previously mentioned, macroglobulins have a sedimentation constant of more than 15 S and a molecular weight of approximately 1,000,000 or more.

The dermatitis and peripheral neuropathy probably are part of the primary disease. When neurologic and/or psychiatric manifestations are prominently associated with macroglobulinemia the label of "Bing-Neal syndrome" may be applied. Prolonged follow-up will be necessary to completely evaluate this case as to the final diagnosis.

I am indebted to Dr. Paul S. Rhoads for his permission to present this case, and to Drs. Wilson H. Hartz and Roger W. Friskey for their assistance.

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Hypnosis

(Continued from page 3)

ing their deliveries under hypnosis is approximately 60 per cent. As for the other 40 per cent, their condition during the pre-natal period of their pregnancy is benefited by the relaxation techniques acquired from the tapes.

Summary and Discussion

The common fallacy that hypnosis is used mostly for symptom removal on psychosomatic patients does not necessarily hold true.

The cases reported in this paper are not unusual or exceptional. They illustrate the routine and methodical results that a physician can expect from the use of hypnosis if he will make the effort to qualify himself.

After a physician has acquired proficiency in the rapid induction techniques as well as the verbalization of suggestions, the use of hypnosis becomes an efficient and worthwhile procedure in his therapy of patients.

Medical and postgraduate schools should include more courses in hypnosis taught by physicians who have had practical experiences in applying it to the field of medicine other than psychiatry.

Conclusions

There are two advantages that accrue to the physician using hypnosis in his practice. First, a greater degree of patient cooperation is secured. Secondly, hypnosis serves as a catalyst that enhances or expedites the therapeutic action of medications given to the patients.

The mechanism by which this "catalyst" effect is obtained again may be attributed to the increased degree of patient relaxation and cooperation.

Fact or Fallacy?

A person standing next to you hears your voice louder than you do. True. When you talk, some sound waves go up a canal at the back of your mouth, and inside your ear they meet the sounds coming from the air, and help cancel them out.

Stomal Cancer

A Complication Many Years After Gastroenterostomy For Benign Peptic Ulcer

EZATOLLAH FOROUGHI, M.D., *Kansas City**

DEVELOPMENT OF CANCER at the site of the stoma following gastroenterostomy for benign peptic ulcer has rarely been reported in the literature. Beatson in 1926 drew attention to this lesion by reporting a case of stomal cancer occurring 12 years after gastroenterostomy. Freedman and Berne in 1954 reported three cases with such stomal cancer. Their report also included fifty-five cases of stomal cancer from the literature of which thirty-one cases were following gastroenterostomy. Since then an additional case has been recorded.³ In view of the rarity of this lesion and the importance of its clinical recognition, these two cases are being presented.

Case Reports

Case 1. D. S. a 74-year-old Caucasian male was admitted to St. Luke's Hospital, Kansas City, Missouri, on March 25, 1959, with a history of anorexia, weakness, abdominal pain, and constipation, with some recent aggravation and episodes of melena in the preceding 2½ months. He underwent posterior gastroenterostomy for a gastric ulcer in 1915, 44 years prior to admission. In 1955 he complained of some epigastric "empty feelings," relieved by food. An upper gastrointestinal series at that time revealed a widely patent gastroenterostomy stoma with prominence of the gastric mucosal pattern particularly in the antrum.

On admission his blood pressure was 158/60 mm. of mercury, pulse 83 per minute. There was a harsh systolic murmur best heard at the base of the heart. Moderate epigastric tenderness was present. The white blood count was 7,200 with 62 per cent neutrophils and 38 per cent lymphocytes; red blood count was 2,996,000 and platelet count was 62,000. Bleeding time was 2½ minutes and clotting time was 3 minutes. Red cell fragility test showed initial hemolysis at 0.44 per cent and complete hemolysis at 0.34 per cent. Hemoglobin, 9.5 gm. per cent; total serum protein, 6.7 gm. per cent; albumin, 3.7 gm. per cent; globulin, 3 gm. per cent; serum bilirubin, 0.85 mg. per cent; blood sugar, 94 mg. per cent; NPN, 28 mg. per cent; cholesterol, 167 gm. per cent; Cr. 51 red cell survival was normal. Bone marrow revealed normoblastic hyperplasia. Gastric analysis revealed fasting total acidity of 13.4° with no free hydrochloric acid. There

Stomal cancer is an unusual complication of gastroenterostomy, developing long after the original operation—in two cases reported here 40 and 44 years later. The diagnosis is suggested by the long interval, which is in contrast to benign stomal ulcer.

was mucus present in the gastric content and benizidine test was positive. No bile was present. Upper gastrointestinal series demonstrated a normal esophagus. The stomach was empty, although extended 2



Figure 1. The x-ray of upper G.I. tract, revealing patent and elongated stoma. There is no visualization of the antrum.

* Department of Pathology, St. Luke's Hospital, Kansas City, Missouri.

cm. below the iliac crest; the antrum was not visualized; however, there was a functioning gastroenterostomy. (*Figure 1*) The stoma appeared narrower and longer than it had been 4 years previously. The barium left the stomach readily and passed into the small bowel. The patient continued to have abdominal pain and poor appetite during his entire hospitalization. He became progressively lethargic and on the 29th hospital day he developed hallucinations, dysphagia, vomiting and finally expired.



Figure 2. Photograph of the autopsy specimen revealing patent narrowed gastroenterostomy stoma. The stoma and the adjacent gastric mucosa as well as the antrum is replaced by raised neoplasm, which does not extend into the duodenum or jejunum.

Major autopsy findings: The body was moderately emaciated and had a linear vertical epigastric cicatrix, 10 cm. in length. The stomach was moderately dilated and showed a patent posterior isoperistaltic gastroenterostomy. The stoma had a diameter of 1.5 cm. and was located 5 cm. proximal to the pylorus. The gastric portion of the stoma was involved by neoplasm. (*Figure 2*) The neoplasm extended into the antrum as well as to the adjacent posterior wall of the stomach for a distance of 5 cm. The involved areas were well demarcated, pale pink, firm, and raised, revealing a few giant folds. The neoplasm consisted of acini and nests of mucus producing atypical cells with basophilic cytoplasm and hyperchromatic, pleomorphic nuclei infiltrating the mucosa and sub-



Figure 3. Photograph of the section through the anastomotic line revealing the jejunal wall on the left and gastric wall on the right of the photograph. The gastric mucosa and submucosa at the anastomosis reveals large areas of mucus producing carcinoma.

mucosa of the gastric portion of the anastomotic line. (*Figures 3, 4*) The nests of tumor cells were extending into the underlying muscularis in some areas. There were nests of neoplastic cells in some of the lymphatic and venous channels with metastasis to the regional lymph nodes, liver, pancreas, lungs, and sternum.

Case 2. F. H. a 72-year-old white female was admitted to St. Joseph's Hospital, Concordia, Kansas,

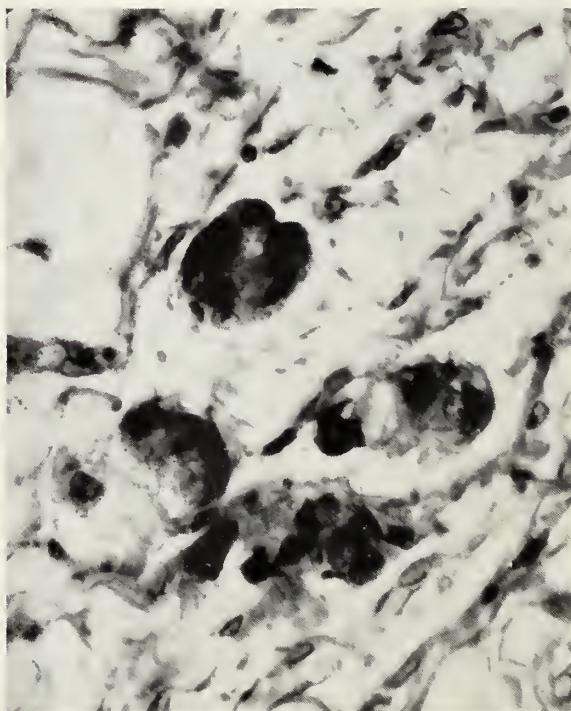


Figure 4. Higher magnification reveals nests of neoplastic cells with hyperchromatic pleomorphic nuclei.

on April 8, 1958, complaining of intermittent epigastric and right upper quadrant pain of one year's duration radiating to her back. She also experienced frequent pyrosis, nausea, vomiting, occasional tarry stools, and 10 pounds weight loss. The symptoms were sometimes relieved for a short period by antacids and milk. She underwent posterior gastroenterostomy for duodenal ulcer in 1919, 40 years prior to her present hospital admission. A laparotomy was done in 1920 for intestinal obstruction due to adhesions, and a revision of her gastroenterostomy was performed in 1939. Since then she had almost continuous left upper quadrant pain. An upper gastrointestinal series one year prior to her admission demonstrated a poorly functioning gastroenterostomy with an anastomotic ulcer. She was treated medically for one year without improvement.

On admission her blood pressure was 145/65 mm. of mercury and pulse 88 per minute. There was significant epigastric tenderness. Her white blood count was 5,800 with 59 per cent polymorphonuclears and

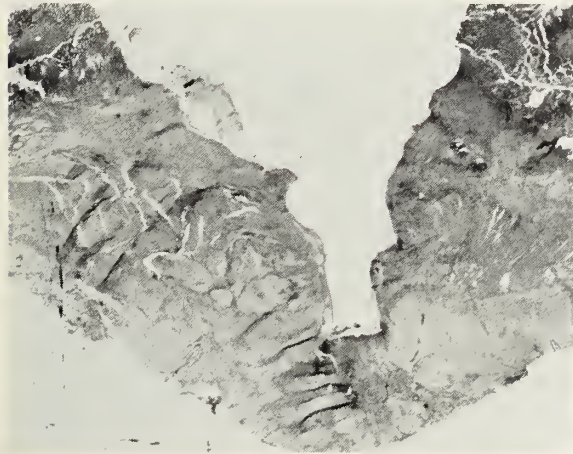


Figure 5. Photograph of the section through the anastomotic ulcer revealing extension to involve the submucosa and muscularis.

41 per cent lymphocytes. Red blood count was 3,520,000; hemoglobin, 66 per cent. Upper gastrointestinal series revealed prominent gastric rugae. The barium passed readily through both the stoma of a gastroenterostomy and the pylorus. A moderate sized ulcer was noted at the stoma and another large ulcer crater was present on the superior surface of the duodenal bulb. On the third day of her hospitalization a subtotal gastrectomy was performed and the regional lymph nodes were also removed. The postoperative course was uneventful and the patient was dismissed from the hospital on the twenty-first postoperative day.

The excised specimen consisted of the distal portion of the stomach, measuring 14 x 8 cm. in diameter. There was attenuation of gastric rugae with some protrusion of the mucosal surface near the



Figure 6. High magnification of the ulcer at the jejunal edge, revealing jejunal mucosa on the right upper part and muscularis on the lower left part of the photograph. The dark mottling on the muscularis is due to cancer cell infiltration.

distal end. At this area there was a patent anastomosis with a loop of small intestine. At the gastroenterostomy site there was a punched-out ulcer measuring 2 centimeters in diameter. The base of the ulcer was firm and made up of granulation-like tissue. Histopathologic examination revealed a large ulcer which in the center was penetrating through the muscularis propria. (*Figure 5*) The base of this ulcer was covered with necrobiotic debris, and one of its margins

(Continued on page 20)

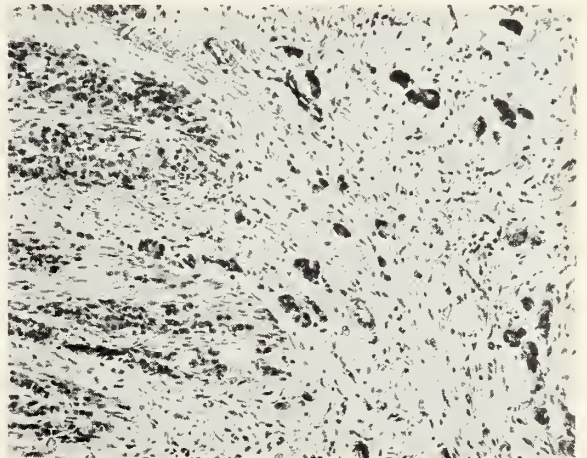


Figure 7. Higher magnification reveals nests of tumor cells infiltrating the submucosa and adjacent muscularis.



Heart Failure, Hepatosplenomegaly, Anemia and Glycosuria

Case Presentation

This was the first admission to KUMC for this 51-year-old white housewife who complained of progressive weakness and dyspnea of five year's duration. She had first noted the onset of mild weakness and easy fatigability about five years before, and at that time she was told by her local physician that she was anemic. She was given a variety of hematinics, including vitamin B₁₂, and she became somewhat better but not completely improved. She continued to receive this same therapy intermittently. Her symptoms were not particularly troublesome until five months before admission when she had increased weakness, fatigue, and exertional dyspnea. During the two weeks before admission she developed orthopnea and paroxysmal nocturnal dyspnea. She complained of a "squeezing" sensation in the lower substernal region. During that time she received iron and vitamin B₁₂, but there was no improvement in her condition. During the three months before admission she was given six blood transfusions because of persistent anemia. Her dyspnea increased, and she was hospitalized elsewhere. She was given oxygen and two days before her admission here she was started on digitalis. She denied weight loss, anorexia, or bleeding from any orifice. She had noticed increased bruisability and occasional ecchymoses for about four months before admission. Her physician reported that about five months before admission she had had a "megalo-blastic marrow."

Her past history and family history were non-contributory.

She had had a slightly productive cough for two

weeks. Her last menstrual period was two years before admission, and she denied any vaginal bleeding since that time.

The patient was a well developed, well nourished white woman with a sallow complexion and ashen-gray pallor. She appeared to be chronically ill. Her blood pressure was 100/60; temperature, 98.6 degrees; pulse rate, 130 per minute; and respiratory rate, 20 per minute. Her neck veins were slightly distended. The mucous membranes were pale. There was a regular sinus rhythm. The PMI was in the fifth intercostal space, 3 cm. outside the mid-clavicular line. A grade II systolic murmur was heard over the entire precordium; it was most prominent at the apex and transmitted to the axilla. There was dullness to percussion and greatly diminished breath sounds over the lower half of both lung fields posteriorly with a few crepitant rales in the upper lung fields bilaterally. The liver was palpable 6 cm. below the right costal margin, and it was smooth and slightly tender. The spleen was palpable 6 cm. below the left costal margin. No other masses were palpable. There were a few ecchymoses present on the legs and at venipuncture sites on the arms. There was no edema. The neurological examination was negative.

On admission the white count was 4,400 with 50 per cent polymorphonuclears, 39 per cent lymphocytes, 1 per cent eosinophils, 1 per cent basophils, and 9 per cent monocytes. The hemoglobin was 10.3 gm.; hematocrit, 36.5 per cent. Platelets were 89,000. A urinalysis was normal. Bleeding and clotting times were normal. The blood urea nitrogen was 11 mg. per cent; serum electrolytes and carbon dioxide were normal; and the serum iron was 230 gamma per cent. A gastric analysis showed free hydrochloric acid. A glucose tolerance test showed values during the first hour of 270 mg. per cent; second hour, 292; third hour, 290; fourth hour, 289. An LE cell study and Coomb's test were negative. The prothrombin

Edited by Jesse D. Rising, M.D. and Mahlon Delp, M.D. from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

time was 18.5 seconds (51 per cent of normal). Tuberculin and histoplasmin skin tests were negative. Three blood cultures were negative at ten days, but a fourth culture grew a coagulase negative, hemolytic *Staphylococcus aureus* and a gamma streptococcus in one broth medium only. Two stools were negative for occult blood; a third showed a trace of blood to guaiac. The red count was 3,460,000 with marked anisocytosis, slight poikilocytosis and many macrocytes. There was one nucleated red blood cell per 100 white blood cells. The mean corpuscular volume was 106 cubic microns; mean corpuscular hemoglobin, 32 micrograms; mean corpuscular hemoglobin concentration, 30.5 per cent. The reticulocyte count was 1 per cent. Repeat blood counts showed no significant change. Alkaline phosphatase was 1.7 units; total serum bilirubin, 1.2 mg. per cent (direct, 0.3 mg. per cent); bromsulphthalein retention, 15 per cent at 45 minutes; cephalin flocculation, 3 plus; thymol turbidity, 21 units; total serum protein, 6.8 gm. per cent; albumin, 3.18 gm. per cent; globulin, 3.60 gm. per cent. The serum cholesterol was 125 mg. per cent; mucoprotein sialic acid test, 250; Weltmann, 7. A cobalt-60 tagged vitamin B₁₂ test showed 23 per cent excretion in the urine in 24 hours. The serum electrophoretic pattern showed an increase in gamma globulin. On admission the venous pressure was 172 mm. of saline; arm-to-tongue circulation time was 19 seconds. A bone marrow aspiration and liver biopsy were obtained shortly after admission.

The patient was placed at bedrest and given a 500 mg. sodium diet and oxygen as needed. She was slowly digitalized. During the first week of hospitalization there was slight improvement in her condition with a decrease in dyspnea and clearing of the rales in the lungs, but she lost only one pound in weight. During the last three hospital days her condition gradually deteriorated; she developed increased orthopnea, nausea and vomiting; and she gained six pounds. A gallop rhythm was heard. On the thirteenth hospital day she became increasingly orthopneic and cyanotic. Her pulse was rapid and weak, and her blood pressure was 100/60. Later in the day her blood pressure dropped to 90/85. She failed to respond to stimulants, and her blood pressure became unobtainable. She died in shock.

Dr. Mahlon Delp (moderator): Are there any questions?

Lloyd Hollinger (fourth year medical student):* Did she have fever at any time?

Dr. Delp: No, she had an afebrile course.

Clement Chun-Ming (student): Was there any lymphadenopathy?

* Although a student at the time of this conference in March, 1960, he like the others referred to as students received the M.D. degree in June, 1960.

Dr. William M. Moore (resident in medicine): No, there was not.

Charles Jones (student): What was the fasting blood sugar value?

Dr. Moore: It was 132 mg. per cent.

Hugh Greer (student): Was an I-131 uptake or a protein bound iodine determination done?

Dr. Moore: No.

Donald Janes (student): When did she receive the blood transfusions?

Dr. Moore: In July and August. Two were given about three days before admission.

Mr. Janes: How long was she treated with iron?

Dr. Moore: She was given a variety of hematinics, but apparently not continuously. She did not know whether any of her medications contained iron or not. During the last five months she received fairly continuous hematinics.

Mr. Hollinger: Was there any glossitis or macroglossia?

Dr. Moore: No, there was not.

Mr. Jones: Did she have any spider nevi?

Dr. Moore: No.

Tom Davis (student): Were there any eye ground changes?

Dr. Moore: No.

Mr. Chun-Ming: Was she a diabetic?

Dr. Moore: No.

Mr. Greer: Was a serum calcium or thoracentesis done?

Dr. Moore: No.

Mr. Hollinger: Were there any repeat tests on the serum iron?

Dr. Moore: No, there were not.

Mr. Janes: Did she have any edema at any time?

Dr. Moore: Pre-sacral edema, 1 to 2 plus, was present three days before death.

Mr. Janes: Will you describe her terminal event with particular reference to cardiac arrhythmia?

Dr. Moore: There was no change in the rhythm aside from the tachycardia. She did not go into an arrhythmia, and, clinically, she did not have a fibrillation. Her pulse became weak and rapid. Her pulse rate slowed to 10 shortly before death, and she was markedly dyspneic.

Mr. Janes: Did she have any children?

Dr. Moore: She had two children.

Mr. Hollinger: Was there any unusual discoloration of the mucous membranes?

Dr. Moore: No, there was not.

Mr. Janes: Did she have a murmur?

Dr. Delp: About five years ago she complained of pressure in her chest, and at that time she was told that she had a murmur.

Dr. Robert Manning (internist): Did she have a

history of alcohol intake or any peculiar dietary habits?

Dr. Delp: No, she did not.

Dr. Manning: Did she have any ascites or abdominal collateral circulation at any time during her hospitalization?

Dr. Moore: No.

Dr. Robert Hudson (internist): Were nucleated red cells seen on more than one occasion?

Dr. Moore: Only one time was reported.

Dr. Robert Reitz (intern): Did she spill any sugar during the glucose tolerance test?

Dr. Delp: The urine sugars were 0, 0, 0.2 and 1 per cent.

Dr. Reitz: Were any other urinalyses done?

Dr. Delp: Yes, but no sugar was found in the urine.

Mr. Jones: Was she treated with insulin?

Dr. Moore: No.

Dr. Delp: If there are no more questions we will now have the electrocardiograms.

Electrocardiograms

Mr. Hollinger: No standard is seen on one side on the first tracing which was taken two days after admission, and there is a normal standard across the chest leads. The rate is approximately 100 and sinus in origin. The P-R interval, QRS and Q-T intervals are within normal limits. There is inversion of the T waves in leads I, II, aVf, V4, V5 and V6. There is low voltage throughout the limb leads and a normal progression of R waves across the chest.

The second tracing (*Figure 1*), taken approximately five days after admission, shows a regular

rate of approximately 90 and sinus in origin. The P-R interval, QRS and Q-T are within normal limits. Again, there is inversion of the T waves throughout.

In the last tracing, taken three days before death, the rate is approximately 115 and regular. I interpret a premature contraction in V₅ as auricular in origin. The P-R and Q-T intervals are within normal limits, and there is inversion of the T waves in leads I and II and across the chest. I interpret these tracings as compatible with signs of anemia, and the changes are essentially non-specific.

Dr. Delp: Thank you. We will now have the x-rays.

X-rays

Mr. Jones: Three x-ray films were taken on the second hospital day. In the first film (*Figure 2*) the apices are clear, and the left lung appears to be normal. The costophrenic angles are visible and fairly

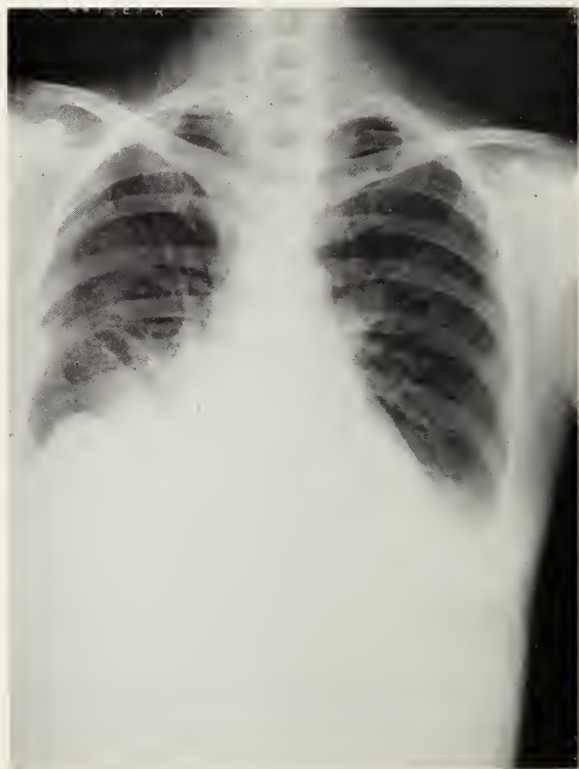


Figure 2. Chest film taken on second hospital day.

sharp. The mediastinum is not unusual, but the cardiac shadow appears to be enlarged. There is increased density on the lower right lung along the interlobar septum and the chest wall. The right diaphragm is elevated and has a peculiar shape. I interpret this film as showing cardiac enlargement and pleural effusion with an elevated right diaphragm.

A lateral view of the chest confirms the findings of pleural effusion and an elevated diaphragm as seen

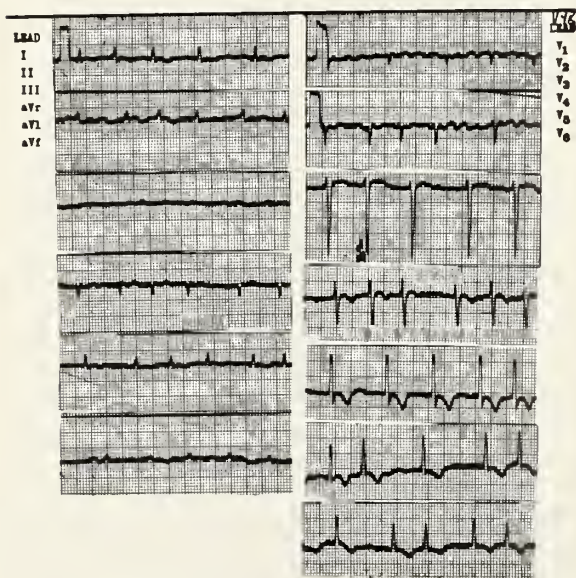


Figure 1. Electrocardiogram taken five days after admission.

on the previous x-ray. I interpret the increased density in the posterior lung field as fluid.

No bony lesions are visible on the KUB film. The liver is prominent and the spleen shadow is clearly seen. The kidneys are not visible. There is gas in the small intestine which possibly suggests an ileus of some type.

Dr. Delp: Thank you. Will you begin our discussion now, please, Mr. Janes?

Differential Diagnosis

Mr. Janes: A 51-year-old white woman came here with progressive weakness, cardiac decompensation, hepatosplenomegaly, macrocytic anemia and diabetes mellitus. I shall base my diagnosis on these findings.

Hypothyroidism can be accompanied by severe intractable heart failure and refractory macrocytic anemia, but our patient did not have edema, hypercholesterolemia, cold intolerance, or any changes in the deep tendon reflexes.

Erythremic myelosis of Di Guglielmos' disease is characterized by hepatosplenomegaly, anemia and proliferation in the bone marrow of young erythroid cells that fail to mature. Other organs, such as the heart, can be infiltrated by this reticuloendothelial hyperplasia, and congestive heart failure could be explained on that basis. I shall dismiss it because of its rarity, and because the anemia is severe and normocytic while the anemia in our patient was macrocytic and not so severe.

Acute or subacute leukemia could present with symptoms similar to those of our patient. Immature white corpuscles in great numbers invariably appear in the circulating blood at some time during the course of the disease. There was no evidence in this case, however, of immature cells.

Aleukemic leukemia is an intriguing but less common variety of leukemia. The white count is often below 4,000, and the abnormal cell types are either absent or present in such small numbers that the diagnosis cannot be made from an examination of the peripheral blood. A diagnosis usually is made from a study of the bone marrow, but even that could be normal. The anemia is refractory to all forms of treatment, and is associated with weakness, fatigue, dyspnea and palpitations. Transfusions provide only temporary relief. Other clinical features are similar to those of acute leukemia with leukocytosis. Signs and symptoms of congestive heart failure may develop as a result of infiltration of the myocardium by the neoplastic cells, but that is uncommon. Careful investigation of most cases of megaloblastic anemia refractory to liver extract or vitamin B₁₂ shows an underlying cause for the anemia or an etiological association such as pregnancy, sprue, structural abnormalities of the stomach and intestine, hepatic and endocrine disorders, or neoplastic infiltration of the bone marrow.

There is a group of cases, however, in which no cause for the anemia can be found, and it is for these that the designation of idiopathic, refractory, megaloblastic anemia provides a convenient label. One-third of these patients have free hydrochloride in the gastric juice, and loss of weight rarely occurs. General weakness is probably the most common presenting symptom, and tends to be in proportion to the severity of the anemia. High output cardiac failure is usually seen as in other cases of tissue anoxia. In megaloblastic anemia laboratory findings are essentially the same as those found in our patient, and include macrocytosis, anisocytosis, poikilocytosis, an increase in mean corpuscular volume, reticulocytes less than two per cent, moderate leukopenia and low blood platelets. Against this diagnosis is the large spleen which was found in our patient and which is usually seen in less than 20 per cent of these cases.

Normocytic or macrocytic anemia is often seen in multiple myeloma. A bone marrow study usually shows plasma cells, but occasional cases have shown a megaloblastic bone marrow. Hepatosplenomegaly is found in 23 per cent of the cases, one-third of which have leukopenia and thrombocytopenia. Bleeding tendencies may result from increased capillary fragility associated with sludged blood. In 75 per cent of these cases there is abnormal electrophoresis with elevated gamma and beta globulins. Associated primary or paramyeloidosis occurs in 6 to 10 per cent of the patients with this disease, and usually involves the tongue, gastrointestinal tract, heart, blood vessels, skin and nerves. The diagnosis is made by biopsy or at autopsy. Our patient would not respond to digitalis, and that is characteristic of amyloid disease. Heart failure accounts for 50 per cent of the deaths in primary amyloidosis. Liver involvement occurs in 30 to 40 per cent of these cases, and alter hepatic function, notably bromsulphthalein retention. Increased alkaline phosphatase and cholesterol with abnormal bilirubin can be explained on the basis of intrahepatic obstruction of the excretory channels. There is splenomegaly, renal failure, and adrenal insufficiency when these organs are involved by amyloidosis. Although these are no x-ray findings, I can not rule out that diagnosis.

Idiopathic hemochromatosis is a rare disease recognized once in approximately 7,000 hospital deaths, and is observed more frequently in men than in women. Nearly 70 per cent of these patients first develop symptoms between the ages of 40 and 60. One of the earliest measureable alterations in iron metabolism in hemochromatosis is the elevation of the plasma iron and saturation of the plasma iron binding protein, transferrin. As the disease progresses the amount of storage iron increases. Iron in the liver and pancreas is increased 50 to 100 times, in the heart 10 to 15 times, and in the spleen, kidney and

skin five times. The evidence indicates that the deposition of iron is the cause of tissue damage. The dietary intake of iron is normal, and the specific nature of the abnormality and absorption is unknown. The initial symptoms most frequently encountered are related to the onset of the diabetes and include weakness, lassitude, weight loss, change of skin color, abdominal pain, dyspnea, edema, ascites and peripheral neuritis. The most prominent physical findings include hepatomegaly, pigmentation, spider angiomas, splenomegaly, ascites, congestive failure, cardiac arrhythmias, loss of body hair and jaundice. Hepatic enlargement is present in about 93 per cent of the cases, and may exist without symptoms or abnormal liver function tests. In more than half of the cases of symptomatic hemochromatosis there is little or no laboratory evidence of functional impairment of the liver, in spite of hepatomegaly and proved fibrosis. A non-tender enlarged spleen is present in about one-half of the cases. About 90 per cent of the patients have diffuse and generalized skin pigmentation which may be due to deposition of melanin or iron or both. In general, melanin deposition gives rise to bronzing, and iron deposition gives the classical metallic hue or the ashen pallor as described in this protocol. About 82 per cent of all patients rapidly develop diabetes mellitus, and the insulin requirement may increase rapidly. About 72 per cent of these patients require insulin for the control of the diabetes. In some instances severe insulin resistance develops while in others there is sensitivity to insulin. Approximately one-third of the patients with idiopathic hemochromatosis die of cardiac failure. Heart disease is extremely common in young adults, and symptoms may develop suddenly and progress rapidly to death. The most significant signs are congestive failure with a terminal cardiac arrhythmia. An occurrence of megaloblastic anemia has been reported in 9 of 35 patients with hemochromatosis, and that could account for our patient's blood picture. Such patients exhibit a delicate balance between glycosuria and hypoglycemia as a result of pancreatic damage as well as impairment of glycogenesis in a damaged liver. Hypoglycemic shock may precipitate failure in a patient with a greatly damaged heart. When heart failure is present digitalis is of questionable value and may be potentially dangerous in a already irritable heart. The majority of patients show a poor response to digitalis.

In summary, I believe that the primary diagnosis is idiopathic hemochromatosis, although it is a rare disease in women. The iron therapy and the blood transfusions probably added momentum to the disease, and she probably died of intractable heart failure with a terminal arrhythmia.

Dr. Delp: Thank you. Mr. Greer, what is your diagnosis?

Mr. Greer: Hemochromatosis is my first diagnosis; my second diagnosis is multiple myeloma with amyloidosis. Amyloidosis could explain the refractory heart failure and I believe it was secondary to multiple myeloma because of the megaloblastic anemia.

Dr. Delp: Mr. Davis, what are your first and second diagnosis?

Mr. Davis: Hemochromatosis is my diagnosis. I do not believe there is a second diagnosis to account for the findings.

Dr. Delp: Mr. Chun-Ming?

Mr. Chun-Ming: Hemochromatosis.

Dr. Delp: Mr. Janes, how do you explain the rarity of idiopathic hemochromatosis in women.

Mr. Janes: Women normally have a periodic depletion of iron stores in menstruation. When hemochromatosis develops in a woman it is usually postmenopausal. Men have no physiological ability to get rid of excess iron.

Dr. Delp: Mr. Hollinger, will you explain the background for the patient's heart failure?

Mr. Hollinger: If the diagnosis is based on hemochromatosis the heart failure would be the result of hemosiderin deposits in the heart leading to tissue damage.

Dr. Delp: Mr. Davis?

Mr. Davis: Before admission the patient had had transfusions when her hemoglobin was probably below 10 grams; it was 10 gm. on admission. There could have been an element of high output failure in addition to deposits of iron in the myocardium.

Dr. Delp: Mr. Greer, is there any inconsistency with the patient's anemia which she had had for five years and the appearance of this disease?

Mr. Greer: The anemia could be explained on the basis of a concurrent megaloblastic anemia.

Dr. Delp: Have you ever seen a case of hemochromatosis?

Mr. Greer: Yes.

Dr. Delp: Was the patient anemic?

Mr. Greer: No, he was not.

Dr. Delp: Dr. Crockett, may we have your opinion in regard to this form of heart failure and your differential diagnosis?

Dr. James Crockett (cardiologist): At the time I saw the patient I was impressed by the fact that this was not a usual cardiac case, and it certainly was not the usual rheumatic heart. The murmur described was totally non-specific. The electrocardiogram was abnormal. The T wave changes were non-specific and compatible with myocardial ischemia. The progression of the R wave across the precordium was somewhat unusual and was virtually the same in V₁, V₂, V₃, and V₄ with the deep S wave all the way across. Although this was a non-specific change it has been observed in myocarditis and has been report-

ed in cases of amyloidosis and correlated with some of the unusual forms of heart disease. Although amyloid disease is an intriguing diagnosis it does not totally fit the picture. The possibility of a non-specific myocarditis must also be considered.

Dr. Delp: Thank you, Dr. Crockett. The patient's murmur was discovered about five years before her admission here, and at that time it was described as a grade III or IV systolic murmur heard at the base of the heart toward the aortic side rather than the pulmonic side. Dr. Dunn, do you believe that the murmur was non-specific and functional in origin?

Dr. Marvin Dunn (cardiologist): If this was a grade IV murmur then I do not believe that it was functional. The electrocardiogram and the chest x-ray are not compatible with an aortic stenosis murmur. At one phase of the patient's illness she could have had two conditions to have produced a heart murmur: (1) a dilated heart could have given rise to a murmur of mitral insufficiency; and (2) she may have had an increased cardiac output, so there was a systolic murmur which we would call a flow murmur because of the increase in blood flow across a normal valve.

Dr. Manning: I believe that the patient had an iron storage disease, and I would differentiate between idiopathic hemochromatosis and secondary iron storage disease, although either is a possibility here. If cardiac failure was present on the basis of iron storage in the heart it would probably be placed in the category of idiopathic hemochromatosis. She had had anemia for five years and during that time she had probably received iron therapy which would have made it possible for her to have fibrosis and iron storage on a secondary basis. Recent studies in which experimental animals have been depleted of protein and then fed iron indicate the development of a pathological picture identical to that of idiopathic hemochromatosis but if the protein intake is normal hemochromatosis does not develop. A postmenopausal woman with a high serum iron, hepatosplenomegaly and cardiac disease is most likely to have idiopathic hemochromatosis.

Dr. Delp: Dr. Hudson, I am curious to know why you asked about the nucleated red blood cells.

Dr. Hudson: The patient's bone marrow may not have been functioning properly, and, as a consequence, she could have had agnogenic myeloid metaplasia in addition to the hemochromatosis. It is unusual to see nucleated red blood cells in the absence of reticulocytosis, and I was considering the diagnosis of agnogenic myeloid metaplasia.

Dr. Delp: Dr. Wilson, what is your differential diagnosis.

Dr. Sloan Wilson (hematologist): It is my opinion that the patient had hemochromatosis. Extensive liver damage and anemia were considered, and a pe-

ripheral megaloblastic type disease could well have been secondary to her liver disease. I do not know why she was anemic.

Dr. Delp: Thank you. We will now have the pathologist's report.

Pathological Report

Dr. John Higginson (pathologist): There were no significant findings on external examination. The liver weighed 2,600 gm., was a mahogany-brown color and enlarged with a fine nodular surface (*Figure 3*). The spleen which weighed 1,000 gm., was enlarged and dark red in color. In addition, the pancreas was dark brown as were the abdominal lymph nodes, especially those draining the liver and those around the head of the pancreas. In the chest, the right pleural cavity contained 1,400 ml. and the left cavity 400 ml. of fluid. The heart weighed 390 gm. and was soft and flabby, and the myocardium had a reddish-brown tinge. The coronary arteries showed minimal atherosclerosis and no significant diminution of the lumen.

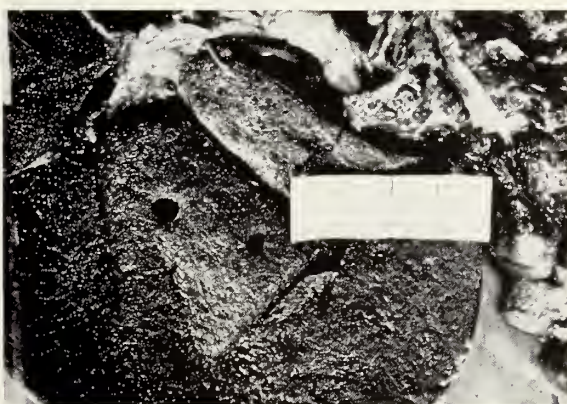


Figure 3. Cut surface of liver showing fine diffuse nodularity.

On section, the liver showed a severe cirrhosis of a diffuse septal type with the features of post-necrotic scarring in some areas. The most striking finding, however, was the presence of heavy deposits of hemosiderin in parenchymal cells and bile ducts (*Figure 4*). Heavy pigment was also observed in the Kupffer cells and in scattered tissue macrophages in the fibrous scars.

The spleen showed a congestive fibrosis, but, in contrast to the liver, there was only scanty iron pigment present. This is a characteristic feature of idiopathic hemochromatosis.

The pancreas showed massive iron pigment deposits in the acinar cells, and also in the islets (*Figure 5*). Examination of the latter indicated that the amount of hemosiderin in the beta cells of the islets

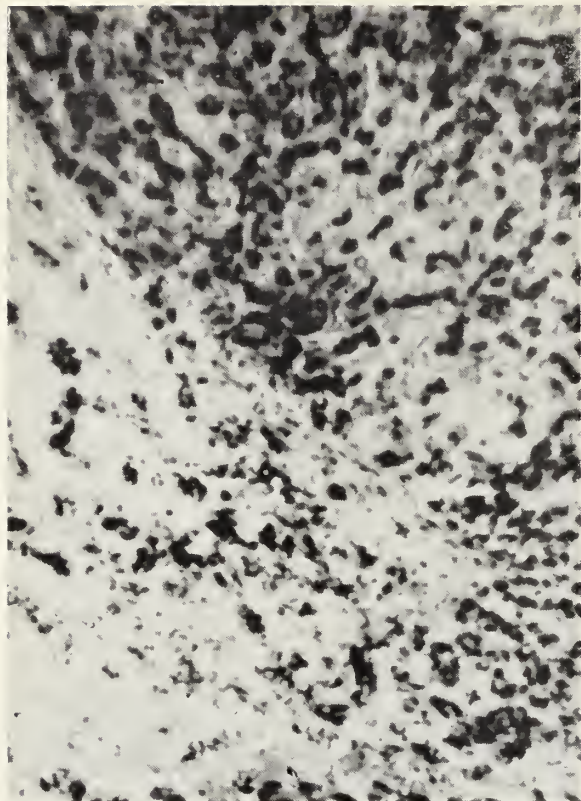


Figure 4. Section of the liver stained for hemosiderin showing extensive iron deposits in the liver cells and in the portal triads.

was slight which is compatible with the clinical observation that a fully developed diabetic picture was not present. Furthermore, interstitial fibrosis of the pancreas was minimal, although the latter is often seen in idiopathic hemochromatosis.

A section of the heart shows diffuse deposition of iron pigment in the myocardium without significant necrosis. In addition to hemosiderin, large amounts of hemofuscin were also found in the muscle cells. The lungs showed considerable congestion and edema.

The choroid plexus also contained large quantities of iron pigment (Figure 6). Sections of the lymph nodes confirmed the hemosiderin deposition seen on gross examination. The bone marrow showed some large primitive megaloblastic cells similar to those seen in cirrhosis (Figure 7).

The morbid anatomical findings in this case are compatible with those seen in idiopathic hemochromatosis. The distribution of iron pigment in the body is different from that seen in simple hemosiderosis whether of transfusional or dietary origin.¹ There are, however, several points worthy of comment.

First, heart failure is not common in idiopathic hemochromatosis,¹ and usually occurs in young people, especially those who have shown a rapid accumulation of iron^{2, 3} and such cases also often show an

association with endocrine abnormalities. While iron deposition in the myocardial fibers may be of significance in this case, it should be noted that the patient had had anemia for a prolonged period, and that in itself may have been a precipitating factor or a synergistic factor in the development of heart failure.

Secondly, in discussing the cause of the anemia, it is known that some cases of idiopathic hemochromatosis show an association with megaloblastic anemia, an association which is greater than that expected by chance.⁴ It has been postulated that this anemia is the same as that seen in cirrhosis of other types and is due to the same causes. It is interesting to speculate that if the patient had visited a doctor for her anemia five years earlier she might have received numerous blood transfusions, and we would now regard this as a case of exogenous hemochromatosis. We are fortunate, therefore that this particular etiology can be excluded here. Any case of hemochromatosis developing in a person who has had multiple transfusions should be carefully examined before it is ascribed unequivocally to exogenous causes. In fact, it is difficult to see how the distinction can always be made, and it is of interest to note that in many reported cases of exogenous hemochromatosis, the amount of iron in the tissues is considerably greater than the amount of iron administered by transfusion.⁵ In one case, there was 20 times more iron in the liver alone than had been administered therapeutically.

In conclusion, I believe that this is a case of idio-

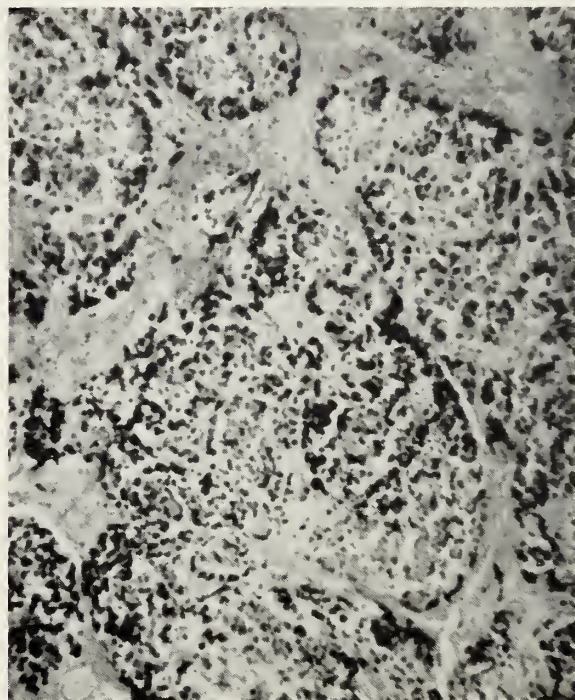


Figure 5. Section of pancreas stained for iron pigments.

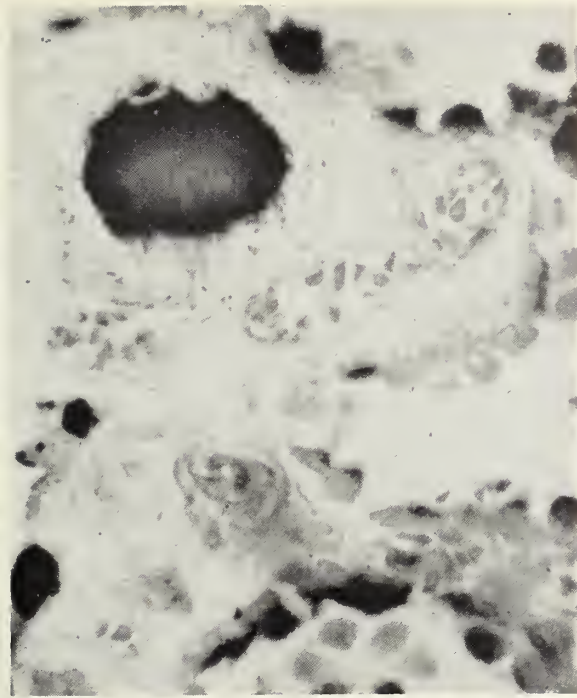


Figure 6. Hemosiderin in the epithelial cells of the choroid plexus and in a psammoma body.

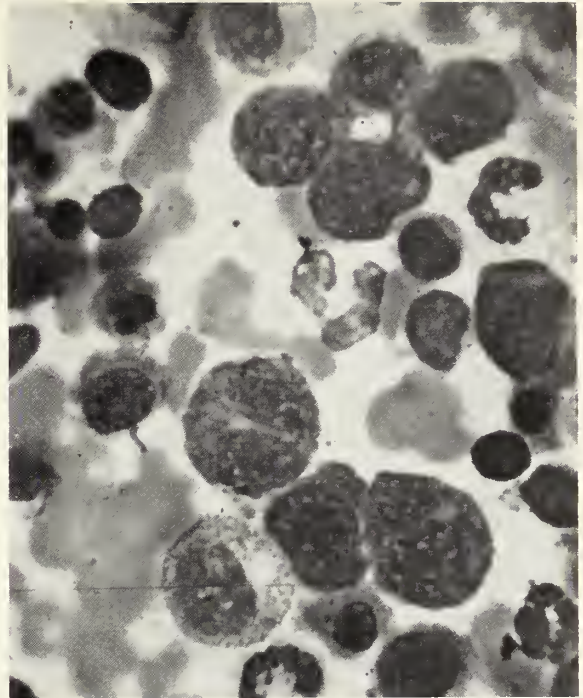


Figure 7. Smear of bone marrow showing primitive cells of red cell series.

pathic hemochromatosis which is associated with a megaloblastic anemia of an idiopathic or refractory type. The immediate cause of death was heart failure.

Dr. Delp: Thank you. Do you believe that the liver was functioning adequately?

Dr. Higginson: Yes.

Dr. Delp: Can you tell us more about the aortic valve of the heart?

Dr. Higginson: There was no significant valvular or endocardial lesion present. The myocardium was flabby and probably reflected a markedly dilated heart during life, but I do not know to what extent a relative incompetence of the valve ring may have resulted.

Dr. Delp: Do you believe this disease entity is more common in men than in women?

Dr. Higginson: Yes. I believe that a reasonable explanation is that the loss of iron during menstruation is a kind of physiological phlebotomy.

Dr. Delp: How many cases of hemochromatosis have you seen in women?

Dr. Higginson: About four or five.

Dr. Delp: On admission the patient was reported to be quite comfortable and cheerful, and she had no dyspnea. Do you believe the disease was reversible, Dr. Wilson? If so, how does one reverse the disease?

Dr. Wilson: The classical way to reverse the disease is to get rid of the iron, and the only possible way to eliminate the iron is by phlebotomy. The iron specific chelating agents have been used but without

much success because one phlebotomy will eliminate more iron than chelating agents can get rid of therapeutically over a period of two or three months.

Dr. Delp: Did you consider the possibility of a phlebotomy?

Dr. Wilson: Yes, but the patient needed blood.

Dr. Delp: Dr. Crockett, do you believe that the patient's heart was damaged enough by iron to cause her death?

Dr. Crockett: I do not know.

Dr. Carson: Is cardiac failure in hemochromatosis rare?

Dr. Higginson: Yes, it is. One report showed 30 cases out of 300 died of heart failure which is 10 per cent of hemochromatotics and a small proportion, in my mind, of a rare disease.

Dr. Delp: It is my hope that some way may be found to reverse this disease in at least a few patients. At times it seems to have been reversed by phlebotomy, but here, of course, there was a dilemma.

In summary, we have had a case of hemochromatosis in which most of the classical findings were present: pigmentation, large liver, large spleen and diabetes mellitus. The patient was in heart failure. I must say that I do not believe that this disease is so uncommon. The diagnosis can be made rather easily by serum iron determinations or punch biopsies of the liver. These procedures may help to make the diagnosis long before the patient gets in such severe trouble that the situation is irreversible.

Pathological, Anatomical Diagnosis

Hepatic cirrhosis.

Pancreatic fibrosis.

Cardiomegaly with dilatation of all chambers of heart.

Hyperplasia, principally erythroid, of bone marrow.

Hyperplasia and fibrosis of lymph nodes.

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Stomal Cancer

(Continued from page 11)

was made up of gastric mucosa, while the other margin consisted of jejunal mucosa. In the bed of the ulcer were numerous invading columns and nests of atypical epithelial cells. Although the nests of neoplastic cells were extending into the adjacent jejunal muscularis propria (*Figures 6, 7*) the overlying jejunal mucosa was not involved. There was neural and perineural involvement, but no involved lymph nodes were found.

Discussion

Recognition of the stomal cancer is rather important, since it often mimics a benign anastomotic lesion. The symptoms that lead to the diagnosis of the stomal cancer are abdominal pain non-responsive to alkali, tenderness, weakness, anemia, gastrointestinal bleeding and radiologic evidence of a gastric filling defect, ulceration, elongation or narrowing of the stoma.

The criteria for the diagnosis of such lesion are as follows: (a) the performance of gastroenterostomy for a benign peptic ulcer; (b) presence of a long interval between the anastomosis and the appearance of the symptoms related to the stomal cancer; (c) the malignant lesion located at and including the line of anastomosis.

The etiology of stomal cancer, as with gastric carcinoma in general, is not known; however, the role of chronic irritation appears more prominent in this group. Konjetzny believes that chronic inflammatory changes are the precursors, while Lurje suggests achlorhydria, local trauma and possibly degeneration of the scar tissue at the anastomotic site. Malignant

degeneration in polypoid lesion or in benign stomal ulcer as well as simple coincidence of the malignant lesion at the site of anastomosis have been suggested.² There is a slightly higher incidence of stomal cancer in the cases reported thus far in which gastroenterostomy was performed for gastric peptic ulcer than in those operated for duodenal ulcer. This may be related to the higher degree of gastric acidity present in the latter cases. The age of the patients with stomal cancer has varied from 34 years to 80 years,^{2,7} and the mean interval between the time of anastomosis and the discovery of malignant lesion has been 17 years.² This interval was 44 years in the first case reported here, which is the longest interval reported thus far in the literature. Since the great majority of benign stomal ulcers develop in the first three years following the operation, the appearance of new symptoms in patients free of complaints for many years is possibly indicative of the presence of stomal malignancy.

The second case is rather interesting and unique for association of her stomal cancer and duodenal ulcer. Association of duodenal ulcer and gastric cancer in general is also uncommon.

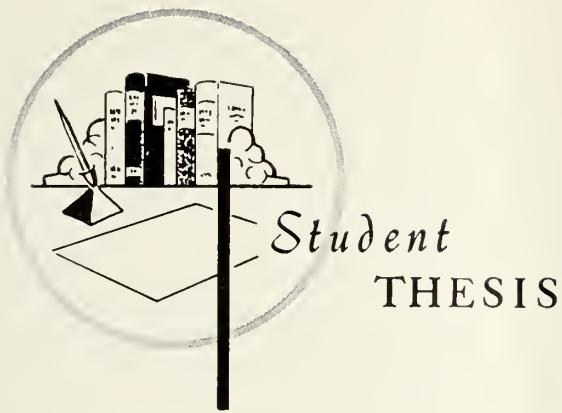
I wish to thank Dr. M. Dodge and Dr. E. R. Gelvin for their kind permission to publish these cases.

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Unknown Prescriptions

The thrust of invention and development has placed us all in an informational pressure cooker, and nowhere is this fact more clinically apparent than in the field of medicine. I am told by a doctor friend that seven out of ten prescriptions written today are for items unknown to medicine before World War II. The communications problems that result are more serious here than in any other area, since human health and life itself are involved.—David Sarnoff, RCA Board Chairman, to National Health Council.



Carcinoma of the Thyroid Following X-Ray Therapy in Infancy

JOHN M. HOLT, M.D., *Wichita*

IN 1950 DUFFY AND FITZGERALD, reporting on 430 cases of carcinoma of the thyroid gland occurring between 1932 and 1948, found that 6.5 per cent or twenty-eight cases occurred in people eighteen years of age or younger. Of these twenty-eight cases, they found that ten had received irradiation to the anterior chest for enlargement of the thymus gland between the ages of four to 16 months. Although they did not draw any conclusions as to the cause and effect of irradiation giving rise to future neoplastic changes in the thyroid, they did suggest that this association should be explored. Since that time there have been other reports in the literature describing carcinoma of the thyroid in patients who had received irradiation therapy in childhood. It is the purpose of this paper to review the literature and see if such a relationship does exist and to report three cases from the University of Kansas.

Friedlander, in 1907, was the first to suggest the use of irradiation in the treatment of what was then called "status lymphaticus." He reported the case of a two-month-old male suffering from cyanosis, cough, and inspiratory stridor. The patient showed marked symptomatic improvement after receiving twelve treat-

ments of x-ray. Following his report, the use of irradiation for the treatment of an "enlarged thymus" was widely accepted and widely practiced between 1930 and 1950. Reasons quoted for irradiating the enlarged thymic shadow include "routine x-ray therapy for enlarged thymic shadow"; "referring physician requests x-ray therapy"; "hiccoughs"; "cough"; "regurgitation after feedings"; and many other frequently encountered minor problems in infancy. Hempelmann and Simpson state that the beneficial efforts of radiation in those suffering respiratory symptoms were due to its action on inflamed mucous membranes and lymph nodes, rather than on the thymus gland and that many of the deaths attributed to the thymus were probably due to overwhelming infection.

Carcinoma of the thyroid in children is a fairly recent entity. In 1899 Ehrhard reported the first well documented case of thyroid carcinoma in the pediatric age group. This was an adenocarcinoma in a seven-year-old girl. Schmidtman, in 1919, reported a case of squamous cell carcinoma in a ten-year-old boy, this being the first authentic report of a thyroid carcinoma occurring in a male below the age of fifteen years. Since that time, however, there has been an increasing incidence of thyroid neoplasms. Only one case appeared in the 19th century literature; one case was reported in the first decade of the 20th century; four cases were reported during the second dec-

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Holt is now at the St. Francis Hospital, Wichita, Kansas.

ade; five cases during the next ten years, a total of forty cases between 1931 and 1940. Fifty-one cases were reported from 1941 to 1950. Clark believes that the increasing incidence is correlated with the increased use of x-ray. Uhlmann, on the other hand, believes that since x-ray was proposed to treat tonsils and adenoids as early as 1913, there should have been a higher incidence between 1920 and 1930 if x-ray were a factor.

In 1953 Warren, Alvizouri and Colock reporting on 23 cases of carcinoma of the thyroid under the age of 20 years, found that only one had a history of previous irradiation to the thymus gland.

This was followed by a report in 1955 by Clark who studied 15 cases of carcinoma of the thyroid gland in patients under 15 years of age. He found that all of these patients gave a history of previous x-ray therapy, however, not all had received it for an enlarged thymus gland. Only three had received it to the upper anterior chest for an enlarged thymus gland, while the other patients had been treated for other conditions. Five had received x-ray therapy to the head and neck for enlarged tonsils and adenoids, one to the face and anterior chest for sinusitis and peribronchitis, one to the upper anterior chest for pertussis, and three to the neck for cervical adenitis. The patients ranged in age from two months to six months at the time of treatment.

In 1955 Buckwalter and Meredith reported the case of an eight-year-old girl with carcinoma of the thyroid who had received an unknown amount of external irradiation during infancy for an enlarged thymus. In the same year Buckwalter found eight cases of carcinoma of the thyroid. Three of these patients gave a history of having had irradiation to the thymus gland during infancy.

Uhlmann found that four of 25 patients under the age of 20 years had a history of previous x-ray therapy. However, in a follow up of 480 patients who received x-ray therapy for enlarged tonsils, he found no carcinoma during a seven year period.

Majarakis, Slaughter and Cole found 15 cases between the ages of 5 to 20 years. Ten of these received x-ray to the head and neck between two months and six years of age. The ten having had irradiation were under 15 years of age at the time of diagnosis.

In a report of ten cases of carcinoma of the thyroid under sixteen years of age, Felterman found that eight had received irradiation. Three of these had been for an enlarged thymus gland, two for hemangiomas of the face and upper chest, two for cervical adenitis and one for enlarged tonsils.

In 1956, Winship found 27 cases of carcinoma of the thyroid in children, 15 years of age or younger, who had received previous x-ray therapy. In his review of the literature, he found that approximately

20 per cent of the 334 cases of thyroid neoplasms had received some form of x-ray therapy.

Simpson and Hempelmann attacked the relationship of irradiation and thyroid carcinoma in a different manner. They obtained the follow-up information on 1,502 of 1,722 children who received thymic radiation between 1926 and 1951, and also obtained information on 1,933 siblings of these children who received no x-ray therapy. There were eighteen cases of malignant tumors found, eleven of which were carcinoma of the thyroid. None of the untreated siblings developed this neoplasm. The authors stated that the number of cases of thyroid carcinoma is significantly higher in the treated group compared with their untreated siblings and with the general population.

Cohen and Hyman reported a case of carcinoma of the thyroid in a nine-year-old girl who had received irradiation at the age of six months for an enlarged thymus gland.

Wilson and Asper, in a study of 37 cases of thyroid neoplasms in patients under 25 years of age found that 43 per cent or 16 patients gave a history of having had received irradiation to the head, neck or chest. Treatment had been given for chronic tonsillitis, adenoiditis, acne, enlarged tongue, laryngeal polyps, and an enlarged thymus. They found that of 18 patients below the age of 17 years, 13 or 72 per cent had received x-ray therapy. This was not true of the 19 patients between the ages of 18 to 25. Only three, or 16 per cent gave a history of previous x-ray. They felt that this was suggestive that the thyroid of infants and adolescents may be more susceptible to the carcinogenic effect of x-ray.

Rooney and Powell studied ten cases of carcinoma of the thyroid in children under 17 years of age. They found that a history of irradiation during infancy or early childhood was obtained in seven of these patients. Only one patient denied having received any x-ray, the other two were considered to have not had x-ray because no definite history could be obtained. It is, therefore, possible that one or both of these could have been subjected to x-ray therapy. Four of the seven had been treated for an enlarged thymus. The other three had x-ray to the neck and tonsillar region.

Rabinowitz and Katz reported the case of a twelve-year-old Bantu girl who developed carcinoma of the thyroid gland seven years after she had received large doses of irradiation to the neck for a lymphosarcoma.

In a study of 18 patients with carcinoma of the thyroid between the ages of three and 15 years, Crile found that 11 of the 14 patients asked had received x-ray therapy. Five had been treated for an enlarged thymus, two for tonsils and adenoids, two for skin eczema, one to the mediastinum for enlarged lymph nodes and one to the cervical lymph nodes.

Petit, Catz, and Starr found that nine of the 11 patients under 21 years of age studied had a history of previous x-ray therapy to the head and neck.

Between 1937 and 1946 Conti and Patton studied a series of 7,400 consecutive newborn infants. Of these infants, 3 to 4 per cent were found to have roentgen evidence of thymic enlargement and were given roentgen therapy, regardless of the presence or absence of symptoms. In a period of two years during the study, all of the newborns were given small doses of x-ray therapy. This was then discontinued. They found no cases of carcinoma of the thyroid gland during their follow-up study. However, of the approximately 800 that were treated, 650 of these were treated less than five years prior to their report. This may not have been long enough for neoplasms to develop. One series found a time lapse of three to 17 years with an average of eight years between x-ray therapy and the operative diagnosis of carcinoma of the thyroid. Clark found an interval of four to 15 years with an average of 6.9 years between therapy and diagnosis.

If radiation therapy is a causative factor in the neoplastic change in the thyroid, there may be some correlation with the dosage of x-ray. Simpson and his associates found that all six of their cases occurred in a group of 804 patients who received more than 200 roentgens of radiation and none in the group of 604 patients who received less. All of Clark's patients received 200 roentgen or more, with a range of 200 to 725 roentgen. Simpson found no cases in patients receiving less than 200 roentgen. Other reports found dosages ranging from 320 to 800r, 200 to 625r, and 240 to 600r. This was the total dosage and some correlation might be made if it had been directed to the thyroid gland in all of the cases. However, many of the patients had therapy to cervical nodes, tonsils and adenoids and for eczema of the face, rather than to the thymus gland. Uhlmann in studying the amount of radiation reaching the thyroid with treatment of lymphoid tissue of the pharynx, found that with the customary three treatments, with a total of 375r to each of two lateral fields, resulted in a maximum of 18r reaching the skin over the thyroid over a period of two weeks. This is much less than the amount that reaches the thyroid during the usual fluoroscopic examination.

Uhlmann states there is a sex ratio of 7:1 females in adults with carcinoma of the thyroid. He also found a higher incidence among female children. In a study of 192 cases, Winship found that 66.6 per cent of the children were females. Others report a ratio of 1.8 females to one male. The ratio of males to females has varied from series to series. Warren and associates reported 19 females and four males, but others show a preponderance of males. Uhlmann believes that the

findings of an increased incidence in females is against x-ray as being a causative factor. If carcinoma of the thyroid were due to the effects of radiation, then the sex incidence should be more equal.

The exact role that x-ray may have in pathogenesis of thyroid neoplasms is not known, but several theories have been postulated. Whether the thymus gland plays any role in the production of thyroid neoplasms is unknown, and many cases have been reported in which there was no evidence of thymic enlargement. Most of the theories have been centered around the relationship between the pituitary gland and the thyroid gland. It is well known that during adolescence there is an increased demand for thyroid hormone and thus an increased amount of thyroid stimulating hormone. Some authors also believe that the thyroid gland of children is more susceptible to the carcinogenic effect of x-ray.

Doniach attempted to determine differences between the sensitivity of the weanling rat's thyroid and that of the adult thyroid to irradiation by using I^{131} . He did this by injecting various dosages of I^{131} intraperitoneally. He then measured the thyroid weight response to a goitrogenic challenge given four months later. He found no gross difference in the sensitivity from that found previously in adult rats.

Hall has postulated a dual action of initiation and promotion in thyroid carcinogenesis. He suggests an initiating phase in which a carcinogen produces latent tumor cells and then a promoting phase in which endogenous thyroid stimulating hormone causes these cells to develop into visible tumors.

Bielschowsky has shown that the thyroid responds to elevated thyrotropin levels with an increase in the size of the epithelial cells and a loss of colloid. The degree of diffuse hyperplasia depends upon the amount of thyrotropic hormone secreted by the pituitary. The longer the thyrotropin stimulus persists, the greater the chance for the development of nodules. He also demonstrated that previous irradiation will hasten the appearance of nodules.

Doniach extended the concept of the dual role of radiation and goitrogens. He studied the effect of radioactive iodine alone and in combination with methylthiouracil on the thyroid of rats. Using dosages of 5uc, 30 uc and 100 uc of I^{131} , he found an increased incidence of adenoma formation in those treated with 5 uc and 30 uc as compared to his controls. None of these developed carcinoma. In a series of twenty rats treated with 30uc of I^{131} and then methylthiouracil for a period of 15 months, he found that five developed carcinomas in the thyroid. This supported the theory of the effect of TSH on the gland.

Three cases of carcinoma of the thyroid gland, in patients under 20 years of age, were seen at the Uni-

versity of Kansas Medical Center between 1936 and 1960.

Case No. 1

J. B., a 19-year-old white female, was referred to KUMC on June 18, 1953, with a diagnosis of "cylindromatous mixed tumor" of the nose. On admission the thyroid gland was found to be enlarged and nodular. A firm 2 by 1½ centimeter nodule was found on the anterior border of the right sternocleidomastoid muscle. A biopsy of this node revealed metastatic papillary carcinoma of the thyroid. The I¹³¹ uptake was 16 per cent. On July 13, 1953 the patient had a total thyroidectomy and left radical neck dissection. Six of seven nodes were positive for metastasis. On November 3, 1953 the I¹³¹ was 8 per cent with excessive uptake over the right side of the neck. A right radical neck dissection was done on November 11, 1953 and two of 20 nodes were positive for tumor. Following this, the patient had numerous admissions to the hospital during which time she received maximum x-ray therapy and a course of nitrogen mustard for control of the nasal tumor. The patient was discharged to the Wyandotte County Home in September, 1960 after therapy had failed to halt the progression of the nasal tumor.

Case No. 2

J. J., a 19-year-old white female, was referred to KUMC on September 15, 1952. The patient gave a history of an enlarged thyroid gland of one year's duration. Because of some increasing difficulty in breathing, a mass from the isthmus of the thyroid was removed at another hospital. A diagnosis of papillary adenocarcinoma of the thyroid was made and she was referred to KUMC for further evaluation.

On September 18, 1952, a total thyroidectomy and bilateral simple neck dissection was done. Fourteen of 26 nodes were positive for tumor. This was followed on December 13, 1953, by a left radical neck dissection, because of the presence of 2 one-centimeter nodules in the left posterior cervical chain. At this time four of 13 nodes were reported as positive for tumor. The patient was last seen in June, 1955 with no evidence of recurrence.

Case No. 3

P. M., a 17-year-old white male, was referred to KUMC on April 20, 1960. The patient had a history of recurrent upper respiratory infection during the winter months, associated with painful swellings of the anterior cervical nodes. The nodes would recede following the infection.

In January 1960, the patient had two episodes

of upper respiratory infection within one month's duration. At this time the nodes failed to recede. A chest x-ray two weeks before admission revealed a fine granular infiltrate characteristic of metastatic carcinoma of the thyroid. A cervical node biopsy, one week before admission, demonstrated metastatic carcinoma of the thyroid. On admission a 0.5 by 1 centimeter firm, moveable, non-tender nodule was found which appeared to be attached to the superior portion of the left lobe of the thyroid. Several enlarged, non-tender anterior cervical nodes were also palpable.

On April 25, 1960 the I¹³¹ uptake was 15 per cent with slight increase over the lung fields. The PBI was 4.8ug per cent. On April 25, 1960, a total thyroidectomy was performed, with the pathology report of follicular papillary adenocarcinoma of the thyroid.

The patient was then treated with 15 units of TSH daily for five days followed by 50 microcuries of I¹³¹. The patient was discharged on 60 milligrams of thyroid and was to receive external irradiation to the neck at his home town.

On August 4, 1960 a chest x-ray revealed slight improvement in metastatic lung lesions. The patient was asymptomatic at this time.

He was last seen in November, 1960. At this time he had some weight gain and complained only of mild dyspnea on exertion.

Case No. 3 was the only one with a positive history of previous x-ray therapy. He had received five x-ray treatments shortly after birth for an enlarged thymus, as did two of his siblings, ages twenty and thirteen. In Cases 1 and 2 there was no mention in the charts as to whether or not they had received x-ray therapy.

The role that irradiation plays in the etiology of carcinoma of the thyroid, if it is a factor, can only be determined by further studies, both clinical and experimental. It does seem, however, that the indiscriminate use of x-ray therapy for the treatment of benign lesions of the head and neck should be avoided. With the improvement in diagnostic methods over the past several years, the widespread use of x-ray therapy for lesions of the head and neck has greatly diminished and its use should be confined only to specific instances in which it is definitely indicated.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

Fact or Fallacy?

Bandage your ears back, and they will stay back. False. That is, unless you never remove the bandage. Plastic surgery is one answer; adopting a "love me, love my ears" attitude is another.

The President's Message

DEAR DOCTOR:

At the interim meeting of the A.M.A. in Denver, it was made very plain that the attack on organized medicine is being put into high gear by the administration. Hearings which of course, tend to be packed in favor of the King-Anderson legislation, especially for public consumption, have been organized.

This presents a serious problem. It must be counteracted by the medical profession if we want to preserve our heritage of free enterprise and free choice, and protect our future generation from the yoke of socialism and its many tragic pitfalls.

If medicine is to survive as a free profession, we, as doctors, must individually and collectively become more responsible for the outcome of this attack on the American system of medical care by legislative action.

AMPAC is a non-political organization which will perform a worthwhile service in aiding to combat indignities being thrust at the medical profession and will help in improving the public posture of the medical profession.

Time is short—may our efforts not be wasted. Remember, those who need help must help themselves. This cannot be done by lip service, but by conscientious endeavor for the utmost in the care of the aged, without governmental interference.



Yours very truly,

A stylized, handwritten signature in dark ink. The first part of the signature is highly decorative and circular, followed by the name 'Wrightman' in a more fluid, cursive script.

President

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

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LIBRARIES
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and one cent for each additional pound.**

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Editorial COMMENT

In order to properly explain the actions and recommendations that came from the deliberations of the Governor's Advisory Committee on medical care in the welfare program, a certain amount of background material must be presented. If this is not carefully read, you will not be able to see why the deductions that resulted were both plausible and necessary.

The Governor appointed an advisory committee composed of representatives of the three vendors of health services, the County Boards of Social Welfare, and county welfare directors. This committee was charged with the project of presenting a uniform plan for the care of the indigent of the State of Kansas under a limited budget. However, the limitation of the budget would be much less stringent than under the previous administration and the present administration to this date. The existing average state-wide expenditure per indigent person on old age assistance would be raised from approximately \$12 per person to \$15 per person per month. The formula by which this is done is incidental to the purpose of this letter, but knowledge of certain restrictions which will be imposed are essential to your understanding of certain recommendations in this report. The chief restriction is that if and when this report is approved by the Board of Social Welfare, the Governor, and the Budget Committee, and when sufficient funds to carry out this program are voted by the Legislature, it will be no longer possible for any county to raise additional "county money only" to increase payment to the vendors for health services to persons on old age assistance. In other words, insofar as equity is possible, hospitals, pharmacists and physicians in Cloud, Reno, or Trego County will receive the same payment for their services as will hospitals, pharmacists and physicians in Crawford, Shawnee or Saline County. As many of you know, there is now a great disparity in payments to vendors ranging from full fees or charges in one county to services and products at a fraction of cost in other counties.

Proposed Welfare Program

With this brief explanatory statement in mind, let us proceed to the deductions of the committee which are as follows:

1. It would first be necessary to find out what \$15 per indigent would buy in the form of health services.

2. It would be necessary for the three vendors (hospitals, pharmacists and physicians) to be co-operative partners in this venture, each to assume certain responsibilities in reduction of costs, fees or charges, and reduction of unnecessary utilization, in order that the plan might be successful.

3. That at first this plan be restricted to those persons who qualify under the Old Age Assistance provision of the Kerr-Mills Bill.

4. That an insurance spread feature be built into the plan to protect the vendors in counties with a small indigent load, and against unanticipated high usage due to accidents or epidemics.

5. That a uniform proration method be built into the plan should costs exceed the monies available.

Since no trustworthy actuarial statistics are available for a comprehensive type of health care, the Board of Social Welfare arranged for the services of the Actuaries of Blue Cross-Blue Shield to provide an estimate of what such services would cost, if based upon the schedule of fees in Plan A of Blue Shield, Blue Cross at ward rates, drugs according to the Lyon County experiment of Blue Shield and certain other services such as house calls, office calls, out patient laboratory and x-ray services. The figure that the Actuaries came up with was about \$21.80 per person per month.

With the basic principles of the plan adopted by the committee as a whole, a working committee was selected to attempt to formulate a plan which approximated the limits of the budget (\$15 per person) and which might be equally acceptable to the three vendors involved as well as the Legislature.

In the deliberations of the working committee the following conclusions were reached:

1. The hospitals, being non-profit organizations,

would receive costs or charges (ward rate), which ever are less.

Since hospital costs are quite well documented by their periodic filing of cost analysis reports, with Blue Cross, this figure is found to be fairly uniform throughout the state. A reduction of payments below cost for services rendered would pass on to our private patients an additional cost which, in the eyes of the committee, would be undesirable. Hospital days per year would be 30 days per recipient with provisions made for extensions of days in serious protracted illness. The Actuaries estimate of this cost was \$10.05.

Based upon number of prescriptions written in the Lyon County experiment but upon a reduced percentage profit, the druggists felt that they could furnish all drugs (excluding vitamins and over-counter drugs, laxatives, etc.) for \$3.54 per recipient per month.

Physician services were divided in certain categories in order to (1) reduce hospital days, and (2) to be more commensurate with time and personal expenses involved.

I. Medical Services

- A. Office visits—Local charges up to \$4 per visit.
- B. Home visits—Local charges up to \$6 per visit. Private charges are provided here to encourage the physicians to provide home and office calls and thus prevent excessive hospitalization.

The first two visits in any quarter to be charged to the patient. This has two safeguards.

1. The prevention of nuisance or unnecessary calls.
2. The prevention of patients going from doctor to doctor.

C. In the hospital care

1st day—\$10

2nd to 29th day—\$3 per day

Last day—none

Approved days over 30—\$3 per day

It is felt that reasonable payment for the first day would stimulate early workup of a patient and early dismissal.

- D. Consultations would be paid for at \$1.80 per point on the Relative Value Schedule.

II. Surgical Services (including anesthesia) would be paid for at \$1.80 per point on the New Relative Value Schedule (not yet published). The assistant surgeon would be paid 15 per cent of the surgical allowance but not less than \$5.

III. Radiological and laboratory services (out patient) would be paid upon a commensurate basis tak-

ing into consideration the higher overhead cost of maintaining an x-ray or clinical laboratory.

The cost of these medical services were estimated to be \$4.44 per recipient per month.

An analysis of the estimated cost and proration schedule is as follows:

Hospital services	10.05	55.8%
Medical services	4.44	24.6%
Drugs	3.54	19.6%
	<hr/>	<hr/>
	\$18.03	100%

Since \$18.03 per recipient per month was \$3.03 above the projected \$15 per recipient per month limitation, the Advisory Committee was requested to submit another plan which would come within the estimated revenue. After due consideration the committee felt that it would be impossible to arbitrarily reduce the above estimated costs and still obtain vendor acceptance. However, since these cost figures may be high because of the written-in safeguards on utilization and other safeguards which may be established at local or district levels, the committee felt that the vendors would accept the above schedule with proration methods as follows if the expenditures exceeded the income from the \$18.03 per person per month.

1. The Board of Social Welfare to retain a small percentage to act as a contingent fund for spread according to the insurance principle.

2. The Pharmaceutical Association would agree to furnish prescription drugs for \$3.54 per recipient per month, providing (1) the physicians would cooperate in writing prescriptions for smallest amounts deemed necessary for the current illness, and (2) the prescriptions be non-refillable except in established incidents of patients requiring maintenance drugs such as insulin or digitalis, etc., and that insofar as possible chemical and not proprietary names of drugs be used on the prescriptions. With these precautions, if the cost of drugs exceeded the estimate (\$3.54 per recipient) they would develop their own method proration.

The hospital and physician members of the committee then recommended the following formula for reduction of payments to the respective vendors in units four per cent; the hospitals accepting a one per cent reduction of payment and the physicians accepting a three per cent reduction of payment. Since physicians determine usage, it was felt that this was an equitable method of proration.

The adoption of the above plan would then assure the recipients a reasonable, uniform type of care. The overall payments for health services throughout the state would be approximately \$2,000,000 more than has been paid in preceding years, coming from

the additional federal funds. More equitable payments in the fee schedule could be formulated from year to year as our experience grows in this field. It would furnish true actuarial data to the Board of Social Welfare, the Governor, and the Legislature as to the actual costs of adequate comprehensive medical care. By so doing, it would also be a guide for budgeting for and elevating payments for medical services of the other categories not included in this report.

Many of you will find objections to this plan, as did some members of the Council to whom this was reported. In fact, probably all of us can individually find many objections to it. However, we feel that if all of its features are carefully analyzed, combined with the public and political clamour that "aged" must be properly cared for, you will be able to see the true worth of this effort.

LUCIEN R. PYLE, M.D., *Topeka*

GEORGE R. BURKET, JR., M.D., *Kingman*

JOHN L. LATTIMORE, M.D., *Topeka*

THOMAS P. BUTCHER, M.D., *Emporia*

Medical members of the Governor's
Committee to Social Welfare.

The Moral Issue in Social Security Coverage

The hue and cry is forth again! At a moment which for some reason just happens to coincide with the marshalling of administration forces for an all-out battle to link medical care to social security, the "throwaways" are besieging us again with the issue of social security coverage for physicians.

Polls are taken and reported without regard for the obvious: that those most anxious to invoke coverage for physicians are most likely to send back the poll form, while those more likely to be opposed will take the attitude, like chickens with their heads in the sand, "If we ignore it, maybe it will go away."

Much has become commonplace in present-day life which has been initiated without consideration of morality and often without much in the way of dissent or indignation. Concepts of right and wrong have become fuzzy, and there is much talk in this country (strangely resembling points of view from totalitarian countries) about the relativism of values.

The fact remains that government taxation takes over 37 per cent of the total national income, and we are approaching the bankruptcy margin. So far, the medical profession has managed to maintain a semblance of individuality and dignity by insisting that we not be included in a further system of compulsory taxation.

The discontent seems to be growing, however. Ugly

comments about "getting our share out of the pot" are reproduced repeatedly. The fact that physicians in the older age groups seem more interested in having this further governmental control would indicate that very little thought is being given to the tax burdens we are willing to vote upon our children. What other explanation can account for this attitude? Certainly, the facts have been sufficiently disseminated that every doctor can realize that these funds come not from reserves accumulated from social security payments but from the direct taxation of the moment. In short, some older physicians seem more anxious to get their ladle-full out of the pot than to live within a principle.

At a time when we are fighting for the very foundations of free medical practice, it ill behooves us to demonstrate our lack of fundamental principles of morality. What else can it be when we say in effect, "we want more gravy, but we don't want our patients to have any more of it"?

C. R. OPENSHAW, M.D.

Musings of a Drug Manufacturer

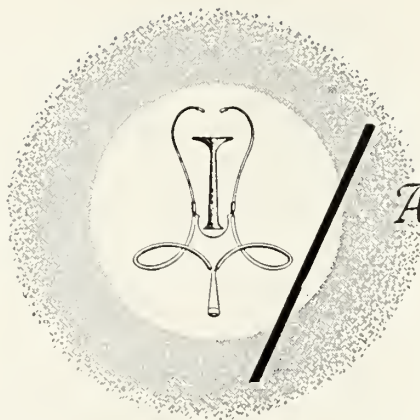
Despite all the seeming inefficiencies of free competition, I would rather be deluged with more medicinal preparations than I know how to use then be forced to sit idle at the bedside of a patient doing nothing because there are not enough drugs to save lives or, at the very least, to bring comfort to my patients. I would rather be accused of trying too hard to market my useful products than to default on marketing and, thus, to lose sales and thereby increase costs. I would rather be stacked up over an airfield for two hours in a 1961 jet than to have the sky all to myself in something like the Wright Brothers' original flying machine. I prefer to suffer the pangs of perplexity in having countless alternatives in the purchase of a new car than to have no choice at all.—Theodore G. Klumpp, M.D., president, Winthrop Laboratories, in *New York Medicine*.

Fact or Fallacy?

One ear could do the work of two. False. If your two ears have the same efficiency, they tell you where a sound is coming from. A sound reaches your ears at slightly different times—and unconsciously you locate the direction of the sound.

Superstitions

Salt must not be mentioned at sea by Scottish fishermen, and some nautical circles still consider it bad luck to start eating a fish at the tail!



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

"Conceptual Advances in Immunology and Oncology" will be the subject of the 16th Annual Symposium on Fundamental Cancer Research to be held March 1, 2 and 3 at The University of Texas M. D. Anderson Hospital and Tumor Institute. Further information may be obtained from the Publications Department, The University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston 25, Texas.

The 14th annual Midwest Cancer Conference will be held March 9 and 10 at the Broadview Hotel in Wichita. The two-day postgraduate conference will feature papers on cancer detection and treatment by nationally known physicians and is sponsored by the Kansas Division of the American Cancer Society. No charge is made for registration.

A discussion of psychosomatic problems of obstetric practice will be featured in the postgraduate course "Obstetric Problems in Private Practice" scheduled for January 23, 24, 25, at the Medical College of Georgia. Registration is limited to a small group for close participant-faculty communication. Registration fee is \$50. Applications may be made by contacting Dr. Claude-Starr Wright, Director, Department of Continuing Education, Medical College of Georgia, Augusta, Georgia.

The Section on Ophthalmology and Otolaryngology of the Southern Medical Association, announces that it will now accept papers to be considered for presentation before the next annual meeting at Miami Beach, Florida, November 12-15, 1962. Papers will be accepted for consideration for presentation until May 15, 1962.

For further information please contact the Secretary, Dr. Albert C. Esposito, Suite 1212, First Huntington National Bank Building, Huntington 1, West Virginia.

The Kansas Heart Association will have a print of the Smith Kline & French Laboratories film on External Cardiac Massage throughout the month of February, 1962.

It is 16 mm.; color and sound; running time 22 minutes.

If you are interested in viewing this film at one of your County Medical Society or Hospital Staff meetings, please write to the Kansas Heart Association, 633 Kansas Avenue, Topeka, Kansas.

The next scheduled examinations (Part II), oral and clinical, for all candidates, will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from April 9 through 14, 1962. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates participating in the Part I Examination will be notified of their eligibility for the Part II Examinations as soon as possible.

Current Bulletins of the American Board of Obstetrics and Gynecology outlining the requirements for application, may be obtained by writing to the Secretary: Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

No company is preferable to bad, because we are more apt to catch the vices of others than their virtues, as disease is far more contagious than health.

—C. C. Colton



Book REVIEWS

THORACIC DISEASES, Eli H. Rubin and Morris Rubin. W. B. Saunders Co., Philadelphia, 1961. 968 pages. Illustrated, \$25.

This is an excellent text on thoracic diseases which attempts to orient the reader in the current developments in this field. Emphasis is placed on cardiopulmonary relationships. There are chapters on cardiac catheterization and angiocardiology in heart lung disease as well as chapters on diseases of the lesser circulation. Chapters on pulmonary function tests and normal pulmonary physiology are included. The usual pulmonary diseases are covered comprehensively in the text. A large section is devoted to intrathoracic neoplasms and lung cancer in keeping with the increasing incidence of lung cancer. However, less common diseases that the average physician sees are by no means neglected. The section on tuberculosis is extensive and comprehensive. An extremely valuable section is that concerned with thoracic disease in children which includes chapters on cardiorespiratory adjustments at birth and perinatal respiratory problems as well as diseases of older children. The subject of thoracic injuries and emergencies is also discussed.

The book is well written and easy to read. The text is amply supplemented by illustrations of x-rays, gross specimens and microscopic sections all of which are clearly reproduced upon its pages. Both medical and surgical viewpoints are expressed since the authors are an internist and a thoracic surgeon respectively. This book can certainly be recommended as a valuable addition to the library of any physician who is seeing patients with thoracic diseases.—W.G.C.

METABOLIC EFFECTS OF ADRENAL HORMONES, Ciba Foundation Study Group No. 6. Edited by Wolstenholme and O'Conner. Little, Brown and Co., Boston, 1960. 103 pages.

On July 15, 1960, a "study group" met in Britain to present papers and exchange views concerning the metabolic effects of adrenal cortical hormones. The guest of honor was an American, Doctor George W. Thorn, who entered into the discussion of each of the

five papers presented. The proceedings were conducted at a rather high level, as might be expected when all of the participants have international reputations in the field, and could be said to be more in the realm of advanced physiology and biochemistry than clinical medicine. Clinical endocrinologists will doubtless find much of value, but the "general internists" and other clinicians will probably find the reading rather heavy going.

Subjects discussed include the actions of glucocorticoids on carbohydrate and protein metabolism, the role of corticoids in the regulation of hepatic metabolism, and the effects of adrenal hormones on adipose tissue. Each paper reviews previous experimental work done in the field, the author's own work, and current related research by other experts. Following each formal presentation there was a discussion by the members of the "study group," and transcripts of the discussions are included in the book.

The final feature is a general discussion which is rather a synthesis of the ideas presented at the conference than a summary of the proceedings.

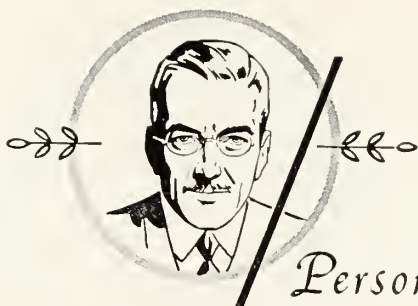
The printing and binding are adequate, and the figures and tables are quite good. The index appears to be quite complete.—J.D.R.

HEREDITY IN OPHTHALMOLOGY, Jules Francois. First Edition. Illustrated. C. V. Mosby Co., St. Louis, 1961. 731 pages, \$23.

The afflictions from which our patients suffer have changed over the past several decades. Infections of all kinds are much less worrisome, while degenerative and hereditary disturbances are increasingly seen. This situation is especially true in Ophthalmology. Great strides in the treatment of infections of the eye have been made, because of the accessibility of this organ. Degenerative diseases assume greater importance because people live longer. Because of the almost total infant survival, there is an increasing opportunity for the continuation of inherited defects.

A book which deals with the whole field of in-

(Continued on page 34)



Personalities—IN KANSAS MEDICINE

Dr. Lucius E. Eckles has closed his office in Topeka and he and Mrs. Eckles will move to Hawaii during January. He has accepted a position as director of medical services at Waimano Training School and Hospital in Honolulu.

Dr. Elmer W. Taylor of Lockwood, Missouri, recently became associated with **Dr. L. Claire Hays** in his practice at Cedar Vale and Sedan.

Specialists in various fields spoke to the junior and senior students at the Paola high school career day in November. **Dr. Jack Rowlett**, Paola, represented the field of medicine and gave the students information relative to his profession.

Dr. Stanley Friesen, Chairman of the Department of Surgery, Kansas University Medical Center, spoke at a joint meeting of the medical societies of McPherson, Marion and Harvey counties at Marion in November. Eulogies were given at the meeting by **Dr. C. A. Isaac**, Newton, for **Dr. H. M. Glover**; **Dr. Jack Welch**, Halstead, for **Dr. G. W. Westfall**; and **Dr. L. E. Peckenschneider** for **Dr. V. E. Chesky**.

Governor John Anderson recently appointed **Dr. Jerry H. McNickle**, Ashland, to the Kansas Crippled Children's Commission.

New officers of the medical staff of the Community Hospital in Beloit are **Dr. C. A. Nystrom**, Cawker City, president; **Dr. C. J. Harwood**, Glasco, vice president; and **Dr. C. W. Plowman**, Jewell, secretary.

The Concordia Rotary Club had **Dr. E. Raymond Gelvin** as speaker at a November meeting. **Dr. Gelvin**

has made a lengthy study on Civil Defense needs and chose "Survival" as the subject of his talk.

New officers elected for 1962 by the medical staff of the Newman Memorial Hospital at Emporia are **Dr. C. R. Hopper**, president and **Dr. H. F. Spencer**, vice president. **Drs. S. L. VanderVelde, K. L. Lohmeyer** and **W. E. Luedtke** are new executive committeemen.

Dr. Donald A. Bitzer, Washington, attended a recent national medical meeting in Cleveland, Ohio.

The director of the Kansas Division of the American Cancer Society, **Dr. D. Cramer Reed** of Wichita, spoke at the December meeting of the Wichita Civitan Club on the recent advances in urology.

James A. Ward, M.D. and **Duane L. Scott**, M.D. are now associated with **Drs. Perry Hunsley** and **P. L. Beiderwell** in their practice in Belleville. **Dr. Ward** recently completed two years in the armed services and **Dr. Scott** finished internship in Wesley Hospital in Wichita.

The members of the medical advisory committee of the Wilson County chapter of the March of Dimes National Foundation include **Drs. F. A. Moorhead, Charles Stevenson** and **Glenn McCray** of Neodesha, and **Drs. Raymond Beal** and **L. E. Beal** of Fredonia.

Dr. C. H. Benage, Pittsburg, has been elected chairman of the Crawford County 14-member mental health board. **Dr. Howard R. Elliott**, county medical officer, is a member of the board.

(Continued on page 37)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

NEW BREAKTHROUGH IN TREATMENT OF ARTHRITIS

The No. 1 crippling disease in the United States today is arthritis, but the day may not be too far off when medical science cuts it down to size.

A dramatic breakthrough was announced recently by Dr. Euclid M. Smith, a member of the American Rheumatism Assn., and of the University of Arkansas Medical School.

In a paper delivered before the annual meeting of the General Practice session of the Southern Medical Conference at Dallas, Dr. Smith said a new electronic technique is producing some amazing results. The technique is based on recent research into the application of pulsed electric fields in the treatment of human diseases.

* * *

According to Dr. Smith, these studies are a direct outgrowth of secret war-time research which produced radar.

In his report, Dr. Smith disclosed that after 1,500 clinical treatments of arthritic patients using a new electronic device, which emits pulsed ultra-high frequency energy, some desired results have been achieved. Mainly, the new method has shown itself virtually free of the dangerous direct and indirect effects in most of the presently accepted medical therapy for all forms of arthritis.

Dr. Smith said the electric field method of treatments produces no appreciable rise in the patient's temperature to damage surrounding tissue.

He explained that the intermittent energy impulses transmitted stimulates the natural defense mechanisms of the body "when directed toward the liver, spleen and adrenal glands." He added that direct application to the joints "exerts a potent, but safe anti-

inflammatory action and rapidly relieves pain and restores normal function."

* * *

Concluding his paper before the medical association, Dr. Smith said, "Sufficient evidence has accumulated to prove that this energy is a valuable addition to the therapeutic armamentarium for the treatment of rheumatic diseases."

Certainly, more research will have to be done on this and other aspects of the disease before it may be whipped. But this development, and those that are sure to come, will one day free the world of this disease.—*Coffeyville Daily Journal*, November 10, 1961.

AN IMPORTANT BOOST FOR MEDICINE, WICHITA

Eight years ago several doctors in Wichita planted a medical research seed in this city. In the time since then, it has sprouted roots and become firmly established. Tuesday the plant began to grow as construction was begun on a quarter-million-dollar Midwest Medical Research Foundation building at 3241 Victor Pl.

Until now the foundation's offices and laboratories have been inadequate for any extensive research but have provided a home for the foundation during its rooting years.

In the not-distant future this plant will bear fruit in the form of new methods of treating diseases, new surgical techniques and better applications of existing knowledge in the health sciences.

The Foundation, in which a number of substantial Wichita citizens of means have taken an interest, will provide a center for pure and applied research in the medical field. The Foundation will extend assistance

to any physician, scientist or other qualified person who has a serious project to pursue. It also hopes to assist students with research for science fair projects.

A measure of the importance of this new venture is the interest shown in it by the five outstanding Mid-western doctor-scientists who have agreed to serve on its advisory board. The willingness of the deans of the medical schools of Kansas, Colorado, Nebraska and Oklahoma and an outstanding research specialist to serve on the board and devote their limited time to help the institute indicates that they feel it has an important role to fill.

The results that emanate from the Foundation's laboratories are not likely to be spectacular. But they will be important both to the medical profession and to Wichita. All in the community should be proud of the Foundation's progress to date and wish it future success.—*Wichita Eagle*, November 22, 1961.

WATCHING THE LOBBIES

Most Americans have accepted the belief Congressional lobbying, though the word itself may have bad and distasteful connotations, is a useful adjunct to the legislative process. It has come to be widely understood the lobbyist, by bringing out data and arguments, can be of genuine help to lawmakers.

Having acknowledged the possible value of lobbying, one may also note excessive activity to push through a point of view threatens to distort Congressional attitudes toward pending legislation.

A case in point is the continuing dispute over the best means of making adequate medical care available to all Americans, regardless of their income status.

Large sums have been spent, primarily by the American Medical Association, to oppose increased federal participation in medical care. This opposition has been directed not only against compulsory health insurance, which the AMA always describes as "socialized medicine," but also against efforts to link medical care for the aged to the social security system. In the first half of 1961 the AMA spent approximately \$147 thousand on lobbying. It was more than any other group.

Calling attention to this is not a condemnation of what the AMA is doing nor of its motives. Lobbying, when done openly, is entirely legitimate. The point being made is when any group spends large sums on lobbying then what it says should be studied with particular care.

By the same token, in such a case special pains should be taken by both the public and Congress to make sure a fair hearing is given those who differ with their views.—*Independence Daily Reporter*, December 1, 1961.

Book Reviews

(Continued from page 31)

herited eye defects is thus a welcome addition to our knowledge.

Dr. Francois divides his book into four portions. He first considers General Genetics, followed by Genetics in Ophthalmology, Hereditary Diseases of the Eye, and concluding with General Diseases with Ocular Manifestations. The section on General Genetics, divided into thirteen chapters and taking 93 pages, is essentially a concise outline of this complex subject. In the next section the author makes some interesting observations. He states that some diseases are exclusively genetic in origin while others are exclusively external. There is, however, a host of intermediate diseases in which both hereditary and external factors are important to a varying extent. It is difficult in this group sometimes to differentiate the cause, as the clinical and functional signs may be identical. Furthermore, an hereditary factor can influence an exogenous disease, or an exogenous factor modify the clinical picture of an hereditary disease. It was believed for a long time that an inherited disease was not only congenital but also static. This is known now to be incorrect. In fact, a congenital abnormality which is itself the outcome of a prenatal evolution can become further modified during life. Also, a hereditary disease can manifest itself sometime after birth or even quite late in life and develop for a period of years.

The section on Hereditary Diseases of the Eye occupies the bulk of the book. Here the author deals chapter by chapter with all of the parts of the eyes and their functions.

This is a good book. It contains a world of information on the subject. It is also an excellent source book on any specific problem because of the extensive bibliography at the end of each chapter.—*G.F.G.*

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Charles Chediak, M.D.
Topeka State Hospital
Topeka, Kansas

Taissia Reinhardt, M.D.
804 Brown Building
Wichita, Kansas

James B. Degner, M.D.
8927 W. Central
Wichita, Kansas

G. D. Robinson, M.D.
444 N. Pershing
Wichita, Kansas

Danuta Iktawiec, M.D.
3141 Puckett Road
Kansas City 3, Kansas

W. E. Thompson, M.D.
3244 E. Douglas
Wichita 8, Kansas

Edwin Z. Levy, M.D.
Menninger Foundation
Topeka, Kansas

The Denver AMA—House of Delegates

L. R. PYLE, M.D., and G. F. GSELL, M.D., *Delegates from Kansas*

Social Security health care, relations with the American College of Surgeons, organization of the American Medical Political Action Committee, medical discipline and polio vaccine were among the major subjects acted upon by the House of Delegates at the American Medical Association's Fifteenth Clinical Meeting held Nov. 26-30 in Denver.

Sounding the keynote for the Association's campaign to oppose enactment of the King-Anderson type of legislation in 1962, Dr. Leonard W. Larson of Bismarck, N. D., A.M.A. president, told the opening session of the House that proposals to incorporate health care benefits into the Social Security system "would certainly represent the first major, irreversible step toward the complete socialization of medical care."

The compelling issue, Dr. Larson declared, is socialization versus voluntarism—or compulsion versus freedom of choice. He predicted that courage, determination and the will to win on the part of physicians will bring the defeat of the King-Anderson bill in Congress next year.

Pointing out that "we are engaged in an historic struggle to preserve our country's unique system of medical care and our stature as a profession," Dr. Larson said:

"We are *for* voluntarism. We do not believe that Americans, acting either as citizens or as patients, require central direction from government in their choice of doctor or hospital, in the spending of their health care dollars, or in their selection of the health services and facilities best suited to their own individual needs.

"We take our stand for voluntary cooperation, for preservation of the historic federal-state organizational structure, for individual responsibility, for help for those persons who *need* help."

Dr. Larson emphasized that the AMA will continue to give primary attention to implementing the Kerr-Mills Act in the states, promoting voluntary health insurance and prepayment plans designed for the aged, and up-grading nursing homes.

The House of Delegates gave enthusiastic approval to Dr. Larson's address and took several actions reaffirming strong support for the Kerr-Mills program to aid the needy and near-needy aged, and urging a concerted, determined fight against Social Security health care proposals in Congress.

The House advised all state and county medical societies to recognize the impending threat and to prepare now for any eventuality by continuing to oppose any scheme which tries to impose a substand-

ard system of medical care on the American people.

"United, as well as individual, effort is essential," the House declared. "To stop short of our total effort is to invite disaster and to let loose upon our beloved America irreversible forces which will ultimately destroy her. We cannot and we must not fail."

American College of Surgeons

The House agreed with the intent of five resolutions which expressed strong dissatisfaction over recent statements by a spokesman for the American College of Surgeons, and it also approved a Board of Trustees report informing the House that arrangements have been made for a January meeting with the ACS Board of Regents to discuss that organization's recent statements and policy positions. The report expressed hope that the meeting "will lead to a unification of effort in behalf of American medicine."

The House instructed the Board of Trustees to take the five resolutions to the January meeting and to report to the delegates as soon as possible on the results of the meeting. In taking the action, the House approved a reference committee report which said:

"Your reference committee believes the public airing of disagreements between large segments of medicine can only confuse and shake the confidence of the public in the medical profession and distort the true image of medicine which the American people should have.

"However, in its hearings upon the several resolutions relating to the recent statements of the American College of Surgeons, all those who testified were in opposition to the actions and statements of the ACS. The majority of those who spoke were Fellows of the American College of Surgeons.

"Your reference committee has no wish to fan the flames of controversy ignited by the statements of the American College of Surgeons. On the other hand, the committee feels the House has an obligation to its membership—which includes physicians in all types of practice—to agree with the indignation manifested by the introduction of these resolutions and in the discussions before the committee.

"This is all the more important because the position of the American College of Surgeons is based on an incorrect interpretation of the action of this House which in no sense is a retreat from its position of firm opposition to fee splitting."

American Medical Political Action Committee

The House heartily approved the purposes and

goals of the recently-organized American Medical Political Action Committee and urged all physicians, their wives and interested friends to join AMPAC and other political action committees in their states and communities.

"Effective political action must be carried on at the local level and effective implementation must be done by local groups of physicians," the House said. "The formation of AMPAC recognizes the need for a national medical political action committee to coordinate the political activities of physician groups at all levels throughout the country."

The purposes of AMPAC, which is an organization separate and distinct from the American Medical Association as required by federal law, are:

1. To promote and strive for the improvement of government by encouraging and stimulating physicians and others to take a more active and effective part in governmental affairs.

2. To encourage physicians and others to understand the nature and actions of their government as to important political issues and as to the records and positions of political parties, officeholders and candidates for elective office.

3. To assist physicians and others in organizing themselves for more effective political action and for carrying out their civic responsibilities.

4. To do any and all things necessary or desirable for the attainment of the purposes stated above.

Medical Discipline

The House received from the Council on Constitution and Bylaws a proposed amendment which would have made it possible to implement a recommendation by the Medical Disciplinary Committee that was approved by the House at the June, 1961, meeting. This recommendation was to change the bylaws so as to confer original jurisdiction on the Association to suspend and/or revoke the AMA membership of a physician found guilty of violating the Principles of Medical Ethics or the ethical policies of the Association, regardless of whether or not action has been taken against him at the local level. However, after considerable discussion on the floor of the House, the proposed amendment was referred back to the Council on Constitution and Bylaws.

In another action on medical discipline the House approved the expanded activities of the Judicial Council, which has taken over permanent responsibility in that area, and said that the Council program should benefit all physicians, the public and the profession.

Polio Vaccine

The House adopted a resolution which urged that medical societies at the local, county, district or state levels throughout the United States should encourage,

stimulate and participate in surveys to determine the percentage of individuals in each community who have undergone immunizing procedures for poliomyelitis.

The resolution stated that on the basis of the results of the surveys, the local medical society should determine the type of vaccine and the most effective type of program which will be of greatest benefit to the public.

Until such time as all three types of oral vaccine are available, the resolution concluded, the Salk vaccine should be the vaccine of choice for routine poliomyelitis immunization, with the choice of program for administering the vaccine to be determined on a local basis by each county medical society.

Miscellaneous Actions

In considering a wide variety of resolutions and annual and supplementary reports, the House also:

Disapproved of two proposals which would have required that *resolutions* be introduced 30 and 45 days, respectively, before Association meetings.

Approved a statement that physicians have an *ethical obligation* to participate in medical society activities and express their opinions fully and freely.

Reaffirmed AMA policy that it is not considered unethical for a physician to own or operate a *pharmacy* provided there is no exploitation of the patient.

Agreed with the Judicial Council that the physician himself is responsible for the control and custody of *drug samples* once they come into his possession, and in the high tradition of the medical profession he should not dispose of them in any way that could cause harm to others.

Commended those constituent medical societies which have moved forward in the area of *human relations* by eliminating membership restrictions based on race or color. In connection with the same subject, Dr. Peter Murray of New York City, retiring after 12 years of service in the House, told the delegates in a farewell address that Negro physicians now have some kind of medical society membership in every state except one.

Approved a recommendation that a special House committee be appointed to investigate all facets of the operation of the *Joint Commission on Accreditation of Hospitals*.

Agreed with the Board's choice of Miami Beach, Florida, as the site for the 1964 *Clinical Meeting*.

Approved the combining of the American Medical Education Foundation and the *American Medical Research Foundation* into the *American Medical Association Education and Research Foundation*, effective next January 1.

Deferred action on a proposed study of *fund raising* by voluntary health agencies, pending the devel-

omment of additional information by the AMA Committee on Voluntary Health Agencies.

Reaffirmed the previous policy that physicians should have the privilege of prescribing drugs by either *generic or brand name*.

Approved the principle of *income tax deductions* for medical care of the aged.

Recommended, in reviewing the *Medicare Program*, that all county medical societies in the area surrounding armed forces hospitals make a serious attempt to establish formal liaison with the physicians on those hospital staffs.

Endorsed the administration of indigent medical care programs developed in cooperation with local medical organizations as a legitimate activity of *state and local health departments*.

Urged the elimination of all "categories" in programs of *assistance to the needy* at the federal and state level, with all assistance provided through a single program.

Referred to the Council on Medical Service a resolution proposing the use of state and federal tax funds to provide voluntary prepayment health insurance protection for the aged. In a related action the House approved of experimentation with *prepayment plans* under assistance programs.

Urged more vigorous promotion of voluntary non-profit prepayment health plans.

Urged every physician in the United States to use *automobile seat belts*.

Recommended, as a civil defense measure, a *mass immunization* program for the general public.

Suggested that the Board of Trustees continue its negotiations to develop a group *disability insurance* program for AMA members.

Concurred in the Board's appointment of a special committee to study the organizational status of *AMA Sections*, the functions of the Scientific Assembly and existing procedures for establishing medical certifying boards.

Instructed the Council on Medical Education and Hospitals to study the present and potential contribution of the *American Board of Abdominal Surgery* to the advancement of the art and science of surgery and the betterment of public health, to determine whether it should be approved as a recognized examining board.

Approved and commended the objectives and program submitted by the Committee for Liaison with *National Nursing Organizations*.

Recommended that the Secretary of Defense consider the advisability of developing a training program for *reserve medical officers*.

Awards and Donations

The AMA Board of Trustees presented a special

citation to the producers and cast of *The Donna Reed Show* for its "contribution to public understanding of the high ideals of the medical profession." Carl Betz, who portrays Dr. Alex Stone on the television show, received the award from Dr. Hugh H. Hussey, Jr., AMA Board chairman, at the Wednesday Session of the House.

Contributions totaling \$435,275.93 from physicians in six states were presented to the American Medical Education Foundation during the opening session on Monday.

Registration

Final registration at the meeting reached a total of 6,138, including 2,976 physicians.

Personalities

(Continued from page 32)

An internationally famous cardiologist, Dr. George C. Griffith, from the University of Southern California conducted a course on heart treatment at the Sedgwick County Medical Society Building, Wichita, in November. This is one of a series of education projects sponsored by the Midwest Medical Research Foundation. Case presentations were made by a panel of doctors: **Ben H. Buck, Jr., William P. Callahan, Jr., Ernest W. Crow, C. T. Hagan, T. Hiratzka, Wayne E. Hird, Karl M. Neudorfer, Leonard A. O'Donnell, Jr., William J. Reals, John G. Shellito, R. L. Sifford and C. L. Williams**, all of Wichita. Arrangements for the meeting were made by **Dr. C. R. Rombold, Dr. G. E. Milbank and Dr. John Schmaus**, the foundation's educational projects committee. Meeting chairman was **Dr. A. L. Ashmore**.

Dr. V. M. Auchard has been nominated by the Douglas County Medical Society for the state general practitioner of the year honors. Delegates named to the Kansas Medical Society meeting are **Drs. H. Penfield Jones, Russell Frink and Howard Joseph**. Alternates are **Drs. Robert W. Hughes and George R. Learned**. New officers elected for the society are **Dr. R. I. Canuteson**, president; **Dr. Learned**, vice president; **Dr. Phillip Godwin**, secretary; and **Dr. John MacCarthy**, treasurer. The censor is **Dr. M. Erik Wright**.

Kenneth E. Bickford, M.D., is now associated with the Oberlin Clinic according to an announcement by **Dr. C. M. Nelson** and **Dr. James H. Coffman**. Dr. Bickford formerly practiced medicine at Atwood and has now moved to Oberlin.

The Kansas Medical Society—1961-1962

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Woodson.....	A. C. Dingus, Yates Center.....	H. A. West, Yates Center
Wyandotte.....	William W. Abrams, Kansas City.....	James G. Lee, Kansas City

The roaring torrent is deep and wide!"
And loud that clarion voice replied,
Excelsior!

.....
"Beware the pine-tree's withered branch!
Beware the awful avalanche!"
This was the peasant's last Good-night,
A voice replied far up the height
Excelsior!

.....
A traveller, by the faithful hound,
Half buried in the snow was found,
Still grasping in his hand of ice
That banner with the strange device,
Excelsior!

The school boy who reads this poem may find its message, as once I did, painful, provoking and forlorn. A hero who plunges into a mountain blizzard at nightfall to match his resources against embittered natural elements will need something more to sustain him than a magnificent slogan on a banner. The poor fellow of the poem was following the path of mountain goats when he would better have taken the shortest track to the nearest psychiatrist.

The psychologic disorder here is that which the physician terms "obsessive, compulsive behavior," "perfectionism" or "monomania." The desire always to excel may become so dominant a drive that time and energy are frittered away in an often vain attempt to achieve 100 per cent performance when 99 per cent would have served just as well.

Dr. Frank Mann, an eminent early leader in surgical research once told of his frustrations in dealing with a gifted and co-operative group of mechanical engineers who helped design and construct apparatus needed in his work. Having established in preliminary runs that a certain piece of crudely constructed equipment would measure sufficiently well a critical physiologic event, Dr. Mann asked the engineers to make a similar instrument for use in the definitive experiment. In their hands, however, the bread-board model which had worked so well became a beautiful, complex, costly device capable of measurements of hair-splitting accuracy. But, Dr. Mann observed, he did not need that last one per cent of accuracy, for inherent in the experimental design were multiple physiologic processes whose variability from day to day introduced a potential alteration amounting to 25 per cent of the value being quantitated.

This reflection of Dr. Mann's is akin to an answer my father gave when I asked why he planted his beans and peas in casually crooked rows quite unlike the straight rows of his neighbor and friendly competitor. His reply was to the effect that any fool

knew you could get more beans in a crooked than in a straight row. He chose to expend his effort in acts more productive than precise alignment of his beans and peas. It is fitting to add that he had a crop when many a gardener of stricter artistic instincts failed, but he would have been no man for design and cultivation of a tulip bed.

These examples illustrate the importance of making sound choice of effort. Sometimes wisdom dictates striving with fanatic zeal toward perfection; at other times, good sense settles for an approximation to conserve time and energy for other and more critical work.

Once again, the wastefulness of injudicious pursuit of perfection was evident in an amusing parable told by the late Dr. C. B. Francisco, of the Medical School of the University of Kansas, when I was a junior there: A land crab once gained pre-eminence among her kind by mastering the principle that a straight line is the shortest distance between two points. Adherence to this principle served her well when she went each season from the protective waters of the bay to a place far up on the beach to deposit her eggs in the warm sand. Going and coming, her directness shortened her exposure to predatory enemies. But one season, disaster struck. While the crab was laying her eggs, a construction crew set a row of piles precisely in the axis of her line of retreat to the bay. On encountering the first pile, she might have gone around its base, but following the straight line that was the shortest distance between her two points, she went up the near side of the pile clear to the top, and down the far side. The challenge of the second and the third pile was met successfully with the same fanatic adherence to principle, but the poor crab died of exhaustion as she reached the top of the fourth pile. And the moral of this story, as Dr. Francisco declared with grim conviction, is this: "There is *no* substitute for *brains*."

Resolution of the psychologic dilemmas that stem from pursuit of excellence requires sound judgment and stable emotions. In some situations, excellence and perfection may be nearly synonymous; in the complexity and immensity of others, survival itself may depend on the capacity to settle discerningly for the bare essentials.

Sociopolitical Facets of the Dilemma Of Excellence

"... conceived in liberty and dedicated to the proposition that all men are created equal."

In his book entitled "Excellence" John W. Gardner, President of the Carnegie Foundation, delineated the dilemma created by a society which supports, on the one hand, the concept of the fundamental equality

of all citizens but fosters, on the other, the right of the best man to win. Equalitarianism, he recalled (p. 13) was at one period so avidly supported that, "in the West, even licensing of physicians was lax, because not to be lax was apt to be thought undemocratic." Gardner proceeded thus: "The same impulse may be observed in some of our local political contests, in which voters favor the candidate whose folksy, ungrammatical, thumb-in-suspenders type seems to say that he is not in any respect superior to the average voter and perhaps a little inferior. 'Friends, red necks, suckers, and fellow hicks,' was Willie Stark's greeting to the voters."⁵

Gardner observed, however, that competitive performance introduces its own set of hazards: "But even within the bounds of law, extreme emphasis on performance as a criterion of status may foster an atmosphere of raw striving that results in brutal treatment of the less able, less vigorous, or less aggressive; it may wantonly injure those whose temperament or whose values make them unwilling to engage in performance rivalries; it may penalize those whose undeniable excellences do not add up to the kind of performance that society at any given moment chooses to reward." (p. 19) And finally, notwithstanding the common saying that there is lots of room at the top, Gardner writes: "No system which issues an open invitation to every youngster to 'shoot high' can avoid facing the fact that room at the top is limited. Donald Patterson reports that four-fifths of our young people aspire to high level jobs, of which there are only enough to occupy one-fifth of our labor force. Such figures conceal a tremendous amount of human disappointment." (p. 20)

Now this disappointment, as Gardner so effectively argued, is especially painful in our United States because we have been conspicuously, if by no means totally, successful in eliminating the sources of social stratification. When regal power is inherited, only the crown prince must provide an alibi if he fails to the kingship. But a fair share of us must accept a nearly total and personal responsibility for our professional, political and business failures.

My concern over the consequences of modern extreme competition has become acute as I have tried to anticipate the toll it would take not from me, but from those members of the next generation in whose welfare I have an inordinate stake. When my children were younger I was annoyed, mildly or considerably, with educational practices which showed some allegiance to the code that, "Any school system in which one child may fail while another succeeds is unjust, undemocratic, and uneducational."⁶ But my aversions were nearly dislodged when I observed that, in this pleasantly relaxed atmosphere, my children substi-

tuted the joys of learning for the stimulus of competition. Such stimulus, I ruefully admit, was the dominant force through most of my years of exposure to institutional instruction. But now an ironic twist: these same children are well along in high school at a time when the probability of their admission to prestigious colleges rests heavily on their scores made in college admission and achievement tests. Their conversation is filled with accounts of conquest and failure, of one who made a brilliant 725 on his "verbal" only to hit an ignominious 475 in mathematics. These incidentals derived from my highly personal exposure to problems of contemporary youth, substantiate a more broadly based judgment of the world that confronts a member of the new generation: "He sees the brightest youngsters move into the most desirable colleges. He sees industry's recruiters on the campus asking for the A and B students. He sees the able youngsters heading off into the best jobs. Don't try to tell him how tough it was in the old days. Grandpa had it easy."⁷

The competitive atmosphere which pervades the upper reaches of professional and commercial life in these United States has been intensified by the existence of an outside political power committed to achievement of universal political sovereignty and wholly materialistic ends. We must compete, we must produce ever greater degrees of excellence, particularly in scientific fields, or we shall see the destruction of those ideas and values to which our society is committed. But does not the quickest and surest way of destroying these ideas and values lie in capitulation to pursuit of the materialistic ends of the communist state? The question has been asked so often as to be tedious. However, the relevance and unanswered state of the question remain to plague us.

Because we as a people have always loved the stress of new challenges, we shall meet the continuing crisis with zeal. We shall continue to reward those who are successful in the struggle for scientific or commercial excellence. We need, however, to consider those traditions of our Western World which may afford us perspective, that we may offer our children a life holding promise of something more than endless struggle to surpass their classmates, their colleagues, or their fellow citizens of the world.

Ethical Aspects of the Dilemma Of Excellence

"So the last shall be first, and the first last."⁸

"But he that is greatest among you shall be your servant."⁹

"Except a corn of wheat fall into the ground and die, it abideth alone: but if it die, it bringeth forth much fruit."¹⁰

To recapitulate: The psychologic aspects of the dilemma of excellence are manifestations of aberrant emotional states in basically inadequate persons. The sociopolitical facets of the dilemma are artificially stimulated by the particular, and we hope, passing, climate of world affairs to which our citizens are exposed.

But there remains a phase of the dilemma which appears to stem from teachings that lie at the very heart of the ethics of our society. These teachings, if accepted, provide antidotes to those stresses on human personality inherent in the psychologic and sociopolitical aspects of the dilemma of excellence. As statements, they form an interesting sequence of paradoxes, difficult to ignore but more difficult still to apply. Granted that their universal application would resolve certain of the most pressing of humanity's existing problems, questions remain and a new dilemma is posed, a dilemma embraced in the following two questions: Do these teachings of the Judeo-Christian ethic stand a chance of wide acceptance and application in a society composed of human beings? If they are not widely adopted, what will be the fate of the occasional individual who does accept and apply them in a world which, however widespread the lip service given these teachings, will regard him who applies them as one on the lunatic fringe?

The relevance of these questions to current conditions in the United States was defined by Warren B. Martin in an article entitled "Weak Christian: Strong President." Martin pointed out that "the presidential aspirant's religion is not an issue so long as he is predictably nominal in his faith, but it becomes a relevant and divisive issue whenever the candidate shows himself to be devout in his faith." Historically viewed, the president's religion never has become a serious issue in this country because no president ever has taken his religion that seriously. Martin chose to illustrate this point with examples from the life and action of Abraham Lincoln, a president who would be held generally to have given living expression to the paradoxical New Testament teachings. Here was a man who was at once the servant and the leader of his people; a man whose sincerity and humility were so profound that he could express his relation to a political contest in the statement: "I was born and have ever remained in the most humble walks of life . . . if the good people in their wisdom shall see fit to keep me in the background, I have been too familiar with disappointment to be very much chagrined."¹² Yet as a president, Martin held, Lincoln was committed to protection and promotion of the national interest even if this commitment entailed actions contrary to the creed by which he guided the decisions of his personal life. In his open

letter to Horace Greeley on the emancipation issue, Lincoln wrote:

"My paramount object in this struggle is to save the Union, and it is not either to save or to destroy slavery. If I could save the Union without freeing any slave, I would do it, and if I could save it by freeing some and leaving others alone, I would also do that. What I do about slavery, and the colored race, I do because I believe it helps to save the Union, and what I forbear, I forbear because I do not believe it would help to save the Union. . . ."

"I have here stated my purpose according to my view of an official duty; and I intend no modification of my oft-expressed personal wish that all men everywhere could be free!"

"Clearly," Martin observed, "Lincoln drew a line of separation between his personal ethics and what Max Weber has called the ethics of responsibility. Senator John Kennedy identified himself with this political orthodoxy when he said, 'Whatever one's religion in private life may be, for the office-holder nothing takes precedence over the oath to uphold the Constitution and all its parts. . . .'"

"Now all of this may be good politics, but it is questionable whether it is good Christianity."¹³

Is there, then, a rift, deep and enduring, between, on the one hand, competence, strength, excellence in the world of human affairs and, on the other hand, commitment to and application of those paradoxical teachings which some of us regard as the highest and perhaps the ultimate expressions of moral excellence? The issue has relevance in lives of persons whose responsibilities are less than the responsibilities carried by leaders of nations. The physician's dual role as scientist and humanist makes him peculiarly likely to face the dilemma. His manner of resolving it may not affect discernibly the course of recorded history, but his solution may lengthen or shorten, enrich or impoverish, the lives of his patients.

That a physician who carries out a surgical procedure should be a competent technician, no right-minded person would dispute. If he is to be your surgeon or mine, he should be more than competent; he should be excellent in that high degree of excellence that approaches perfection. In the pursuit of perfection, he did not assault his close associates; but he may have provoked in these associates resentments in which a wise judge would deem them justified. First class surgeons, as I have been privileged to know them, commonly did not get that way by taking the tail end position in a queue. As a group, they would lean more to the admonition that one not hide his light under a bushel than to the unrealistic promise which has it that the last shall be first. And so, I might add, would most dispensers of digitalis.

As physicians in the pursuit of professional excellence, we devote long years to formal education; we endure the torture of examinations designed to eliminate the incompetent; we consign to study of professional journals hours which might otherwise be given to recreation. Our commitment to professional pursuits may achieve fanatic proportions. Society meetings are scheduled for week ends lest valuable working hours be diverted from the care of the ill. Discharge of community responsibilities is left to others with less compelling tasks than ours. If our behavior at times is unseemly, let it be condoned because we are men who know the full meaning of stress. Our conduct, as an old friend once stated, would imply allegiance to a code which he captioned, "The Divine Right of the Medical Profession." That our fellow citizens show, increasingly, signs of exasperation with conduct in keeping with this code should lead us to reflect on how good a code it is. Competence, excellence, technical and scientific perfection are not virtues sufficient in themselves for discharge of our obligation either to the sick or to the society which produces us. Only as our pursuit of excellence encompasses devotion to moral and ethical values in keeping with our striving for technical and scientific perfection will we fulfill our profession's commitment to humanistic as well as to scientific ends.

A Final Reflection

For the dilemma of excellence, each must find his own solution if he is to have any solution at all. My own bias runs on this order: The pursuit of excellence, when assigned its proper status in the pattern of life, provides zest, hazards, rewards and exhilaration. It is a pursuit that may be essential to survival; yet narrowly conceived and permitted to become an all-consuming passion, it may destroy an individual or a nation. I would not wish to be divorced from the competition inherent in the pursuit of excellence. Nevertheless, I would hope to be sustained in that competition by certain convictions and perceptions regarding the scope and significance of the game being played, as expressed in three quotations which would lose force by efforts at elaborating on them. The first, the simplest, and that of strongest immediate appeal, is a plea for breadth of perspective and it is found in the chorus of a familiar gospel hymn. Its message would seem to bear a special relevance to the psychologic aspects of the dilemma of excellence:

Lord lift me up and let me stand,
By faith, on Heaven's table land,
A higher plane than I have found;
Lord, plant my feet on higher ground.¹⁴

The sociopolitical aspects of the dilemma may have been troubling the mind of Robert Browning when he chose to convey the perceptions of a philosopher in the words of a peasant girl's song:

All service ranks the same with God:
If now, as formerly, he trod
Paradise . . .

Say not "a small event!" Why "small"?
Costs it more pain than this, ye call
A "great event," should come to pass
Than that? Untwine me from the mass
Of deeds which make up life, one deed
Power shall fall short in or exceed!¹⁵

The third is cryptic, sharing in the fascination with paradox which pervades the great teachings pertinent to the ethical aspects of the dilemma of excellence. Here the philosopher's ambivalence finds expression in a mystic's creed.

If the red slayer think he slays,
Or if the slain think he is slain,
They know not well the subtle ways
I keep, and pass, and turn again.

Far or forget to me is near;
Shadow and sunlight are the same;
The vanished gods to me appear;
And one to me are shame and fame.

They reckon ill who leave me out;
When me they fly, I am the wings;
I am the doubter and the doubt,
And I the hymn the Brahmin sings.

The strong gods pine for my abode,
And pine in vain the sacred Seven;
But thou, meek lover of the good!
Find me, and turn they back on heaven.¹⁶

Could it just be possible that excellence, like heaven, is not the prize of our high calling, but only an *almost* casual by-product of human striving for a nobler selflessness and a greater goodness?

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(Continued on page 50)

Open Heart Surgery

Aortic Cardiac Fistulas: Ruptured Sinus of Valsalva

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COMMUNICATIONS BETWEEN an aortic valve sinus and the heart have been recognized since Hope's original description in 1839 of "A Case of Aneurismal Pouch of the Aorta Bursting into the Right Ventricle." More recently mention has been given this particular anomaly because of its diagnostic feasibility and corrective surgical therapy. Oram and East in 1955 presented 23 patients including cardiac catheterization data in two instances. Sawyers, Adams and Scott in 1957 reviewed 47 patients of which 19 showed fistulization into the right ventricle. With the advent of satisfactory systems of extracorporeal circulation, increasing numbers of successfully operated cases have appeared in the literature after initial attempts using hypothermic technics had been partially satisfactory.

We have recently encountered two examples of this anomaly:

CASE 1: G. B., a 20-year-old white male was admitted to the University of Kansas Medical Center on March 23, 1957, for the evaluation of a heart murmur. This had been first noted at the age of seven prior to a tonsillectomy. Aside from minimal dyspnea with marked exertion, slight fatigue and occasional palpitation, the patient had been asymptomatic. Physically he had been quite active, indulging in such sports as water skiing.

Physical examination showed a well-developed, well-nourished young male who did not appear ill. The significant findings were confined to the cardiovascular system—a blood-pressure of 150/60-0 in the arms and 200/100 in the legs; bounding peripheral pulses of a Corrigan nature, and prominent pulsations of the carotid vessels. The heart had a regular sinus rhythm, 76 per minute. The point of maximal cardiac impulse was in the fifth intercostal space at the midclavicular line, diffuse and active. At the third and fourth intercostal spaces along the left sternal border a grade V high pitched machinery murmur and a grade III thrill were present. To the left and below this area the murmur had a systolic-diastolic quality, and was widely transmitted over the entire

precordium. The second pulmonic sound was accentuated.

Routine laboratory studies including urinalysis, complete blood count, blood urea nitrogen, and serum proteins were within normal limits. The electrocardiogram showed left ventricular hypertrophy (*Figure 1*). Fluoroscopy demonstrated slight cardiomegaly with 1-plus enlargement of the right ventricle and 2-plus enlargement of the left ventricle. The main pulmonary artery was moderately enlarged and pulsatile. The hilar markings were heavy.

Two patients, a male aged 20 and a female aged 31, with aortic cardiac fistulas due to a ruptured sinus of Valsalva into the right ventricle are presented.

The clinical syndrome of ruptured sinus of Valsalva and its consideration in the differential diagnosis of continuous precordial murmurs is briefly reviewed.

Due to the progressive pathology of this lesion, surgical correction is indicated after the diagnosis is established.

Because of the murmur's location inferior to the usual murmur of ductus arteriosus, initial considerations included arteriovenous fistula of the chest wall, atypical ductus arteriosus, coronary arteriovenous fistula, a high ventricular septal defect with associated aortic insufficiency, and ruptured sinus of Valsalva. Cardiac catheterization was performed on March 26, 1957 (*Table 1*). This showed a slight increase in oxygen saturation in the right ventricle, although at the time not thought to be significant.

With a preoperative diagnosis of systemic arteriovenous fistula, probably involving the internal mammary or the coronary vessels, exploratory thoracotomy was performed on March 30, 1957. The pleural cavity was entered through a left anterolateral thoracotomy. Careful examination of the chest wall in the area

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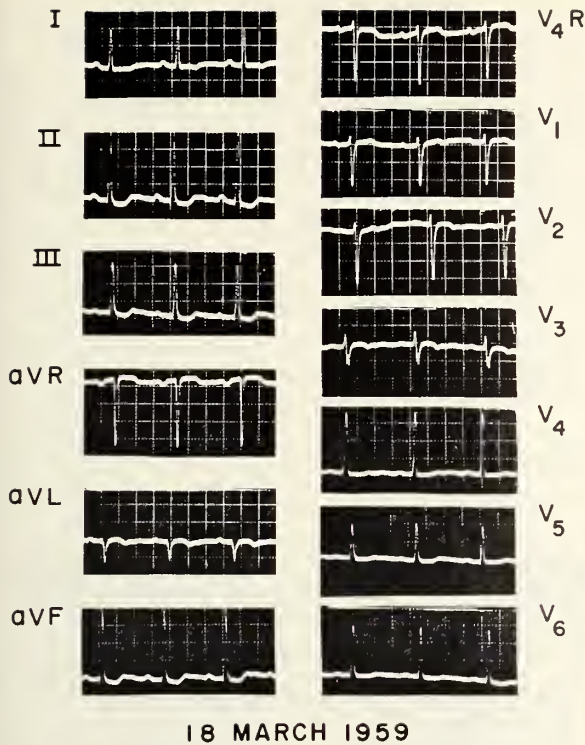
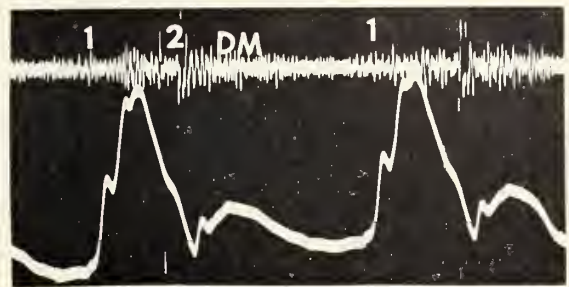


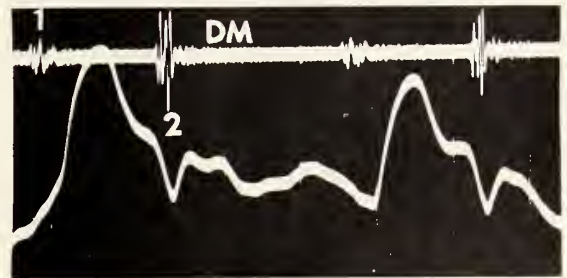
Figure 1. Case 1. Preoperative electrocardiogram showing left ventricular hypertrophy and ischemia.

of the internal mammary vessels failed to reveal any abnormality. Pericardiotomy revealed marked cardiac enlargement, particularly of the right ventricle. The main pulmonary artery was tremendously dilated and over the anterior surface of the right ventricle a continuous thrill was palpable. During diastole a localized bulging could be noted just proximal to the pulmonic ring. No attempt at definite repair was made since extracorporeal circulation apparatus was not available at this operation. The postoperative course was uneventful.

He was readmitted on March 17, 1959, for definite repair of his defect. The physical examination and routine laboratory studies were unchanged from his previous admission. A phonocardiogram demonstrated the continuous murmur well (Figure 2). With the aid of a rotating disc oxygenator (Kay-Cross)



17 MARCH 1959



27 APRIL 1960

Figure 2. Case 1. Phonocardiograms on March 17, 1959, preoperatively, showing the continuous murmur with late systolic accentuation. The first and second sounds are normal. The accompanying carotid tracing shows an anacrotic notch on the ascending limb with a very low diastolic notch in the descending limb. The second tracing, April 27, 1960, one year postoperatively, shows splitting of the second sound, a high amplitude, high frequency decrescendo systolic murmur, and a high amplitude, decrescendo high frequency diastolic murmur following the second sound. The diastolic notch is still low.

TABLE I

CARDIAC CATHETERIZATION DATA—CASE 1

Site	Oxygen Content		Pressure	
	VOL. %		S/D	MEAN
SVC	11.9			4
IVC	13.96			3
RA:Close SVC .	12.29			
Mid RA ..	12.8		9/6	7
Close IVC .	11.79			
RV:Inflow	12.99			
Mid	13.4, 13.6		37/0	14
Outflow ..	13.55		23/0	
PA:Main	13.5, 13.3		23/8	12.5
Right	13.35		21/12	14
Left	13.58, 13.5		21/10	12
Wedge RPA ...	14.35			10
FA	16.72, 16.91		115/69	78
Calculated Cardiac Output: 5340 ml./min.				
Hb. 13.3 gm %.				

extracorporeal apparatus he was reoperated on March 21, 1959, using a sternal splitting approach. The gross findings were similar to those at the first operation. Through a right ventriculotomy a 1.3 cm. defect was noted in the superior portion of the ventricular septum. The sinus of Valsalva of the right coronary cusp was bulging into the defect and had two apertures each 0.2 cm. in diameter, through which blood gushed from the aorta (*Figure 3*). The aorta was cross clamped and the openings in the aortic sinus closed with interrupted 000 silk sutures. The ventricular septal defect was then closed with interrupted sutures of 000 silk, reinforced with a continuous suture of 000 silk. The heart developed ventricular fibrillation, but was easily defibrillated electrically with restoration of a normal sinus rhythm.

The postoperative course was uneventful and he was discharged from the hospital on the 7th post-operative day. He was last seen on April 27, 1960. Normal activities had been resumed shortly after his release from the hospital and he was completely asymptomatic. Physical examination on this visit disclosed grade II systolic and diastolic murmur along the left sternal border, confirmed by phonocardiogram (*Figure 2*). His blood pressure was 142/60. The electrocardiogram showed diminution of the left ventricular strain.

CASE 2: L. C., a 31-year-old white lady was admitted to the University of Kansas Medical Center for the first time on August 5, 1959, with a chief complaint of fatigue. She had been in excellent health until January, 1958 when she developed a severe sore throat. Following this she noted considerable fatigue and slight, but relatively constant, fever. She consulted her family physician in May of 1958 and a heart murmur was definitely noted for the first time, although the patient believed that she had had one during her childhood. A diagnosis of acute rheumatic fever was made and she was hospitalized for several weeks for treatment with penicillin and steroids. She was discharged on Bicillin each three weeks but noted progression of her fatigue and migratory joint pains involving the ankles, wrists, and knees.

On April 19, 1959, she developed sudden severe chest pain with acute dyspnea. She was again hospitalized, treated with penicillin and steroids, and then referred to the University of Kansas Medical Center.

Her past history included four uneventful pregnancies, one child having had tricuspid atresia. Physical examination at this admission showed a well-developed, well-nourished female with a blood pressure of 115/70 and a pulse of 88. The maximal car-

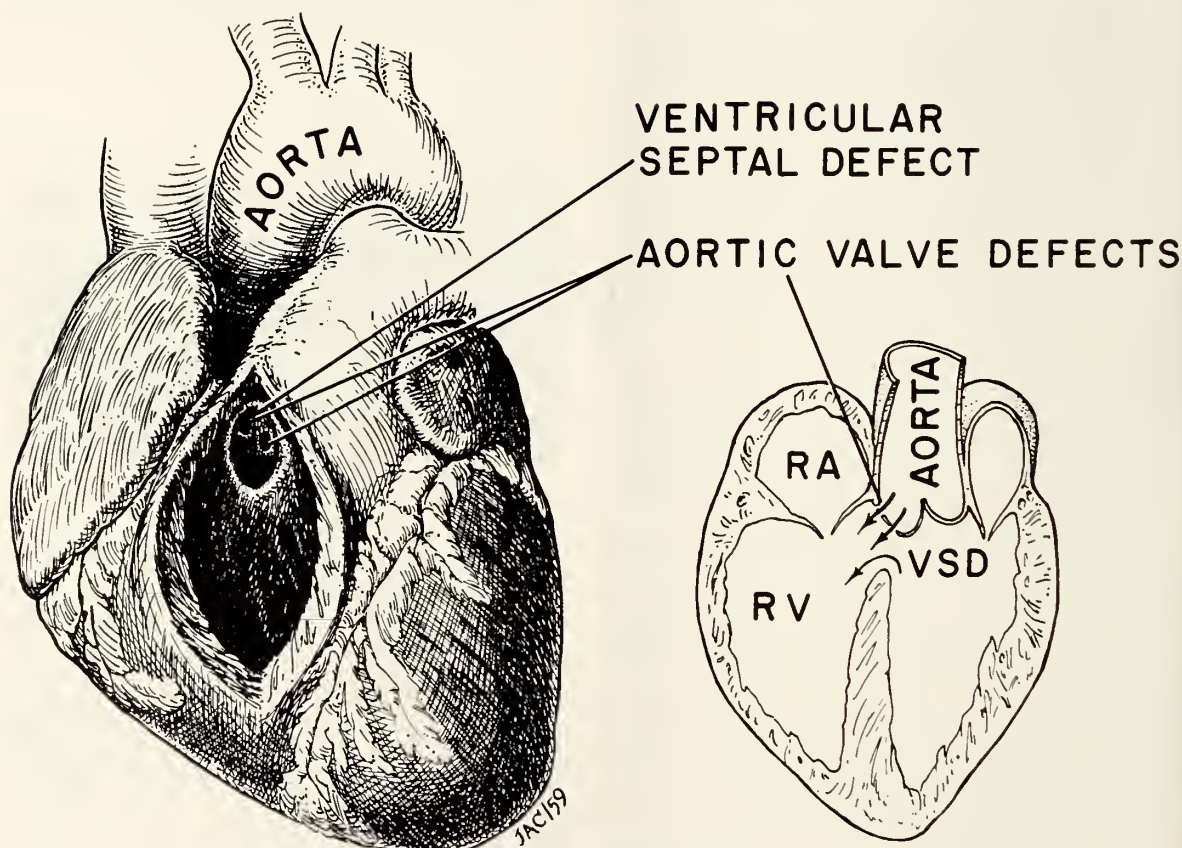


Figure 3. Case 1. Operative findings.

diac impulse was in the fifth intercostal space in the midclavicular line. P-2 was greater than A-2. There was a grade II-III systolic murmur at the base of the heart. Peripheral pulses were normal.

Laboratory studies including urinalysis, complete blood count, blood urea nitrogen, liver function studies, serum electrolytes, and rheumatic activity studies were within normal limits. The electrocardiogram, cardiac fluoroscopy, and x-ray films of the chest were normal (*Figure 4*). Phonocardiogram was interpreted as possibly compatible with murmurs of early aortic stenosis and insufficiency (*Figure 5*). She was seen by a number of consultants and discharged on August 11, 1959, with a diagnosis of inactive rheumatic fever and recommendations to continue her three weekly penicillin therapy and to take daily salicylates for relief of joint discomfort.

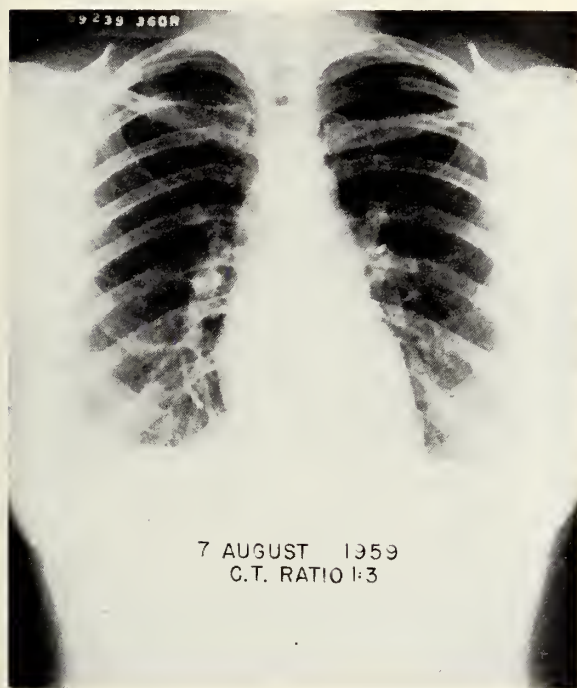
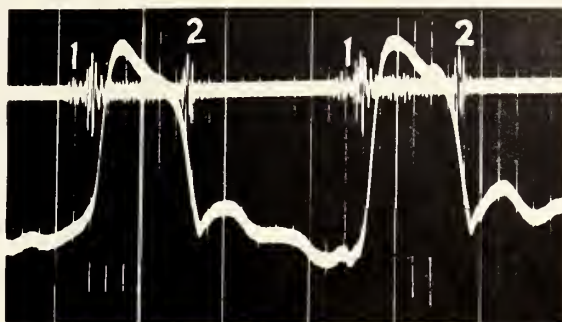


Figure 4. Case 2. Chest X-ray, August 7, 1959, showing moderately prominent hilar shadows, but otherwise entirely normal.

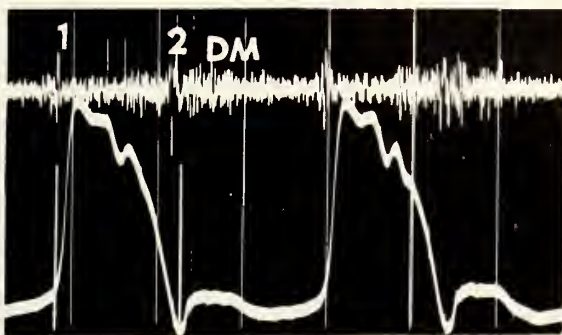
She had no particular difficulty until the latter part of her fifth pregnancy in October of 1960, when she developed congestive heart failure manifested by dyspnea, and a weight gain of 50 pounds. She was treated with diuretics, digitalis, and rest, and in December 1960 delivered a full term normal infant. Post-partum her dyspnea, orthopnea and fatigue continued in spite of prolonged bed rest. She also noted parasternal pressure sensations with a slight activity.

Physical examination on her second admission, March 3, 1961, showed a blood pressure of 140/0

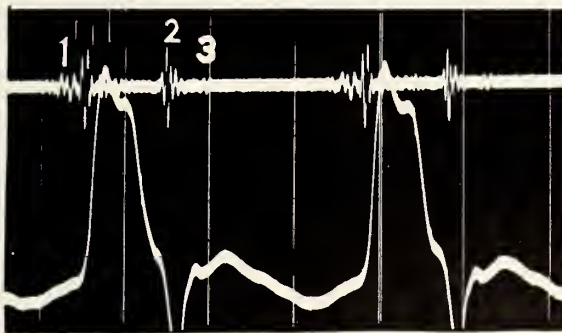
with bounding Corrigan peripheral pulses. Pulse rate was 100 with bigeminy. The point of maximal cardiac impulse was in the fifth intercostal space at the anterior axillary line with an exaggerated left ven-



5 AUGUST 1959



7 MARCH 1961



3 APRIL 1961

Figure 5. Case 2. Phonocardiograms, August 5, 1959, the first shows a high pitched, high amplitude systolic murmur with a split second sound, the murmur passing through the first component of the split. The second tracing, March 7, 1961, obtained before operation demonstrates a high frequency, high amplitude continuous murmur. The carotid trace shows a double notched contour at the top of the descending limb; the total ejection time is just above limits of normal. The third tracing, April 3, 1961, obtained postoperatively shows a systolic murmur, a third heart sound, but no diastolic murmur.

tricular thrust. There was also a prominent right ventricular heave. A grade IV systolic and diastolic thrill was palpable in the second left intercostal space. A grade IV continuous murmur was present, best heard in the second and third left intercostal spaces, radiating to the apex and down along the left sternal border. The liver was palpable 3-4 cm. below the right costal margin.

Fluoroscopy showed moderate cardiomegaly with the right ventricle 2-3 plus, and the main pulmonary artery 2 plus. The right pulmonary artery was markedly pulsatile and there were greatly increased pulmonary vascular markings. Chest x-ray confirmed the findings at fluoroscopy and demonstrated an increase in cardiac size over that seen during her previous hospitalization (*Figure 6*). Electrocardiogram showed frequent premature ventricular contractions in a bigeminal rhythm (*Figure 7*) and vectorcardiogram was interpreted as diastolic overload of the left ventricle. The phonocardiogram demonstrated a high pitched, high amplitude systolic and diastolic murmur suggestive of ductus arteriosus (*Figure 5*). Cardiac catheterization studies showed an increase in oxygen saturation in the right ventricle, with slightly increased right ventricular and pulmonary artery pressures (*Table II*).

The diagnosis of ruptured sinus of Valsalva to the right side of the heart with congestive failure

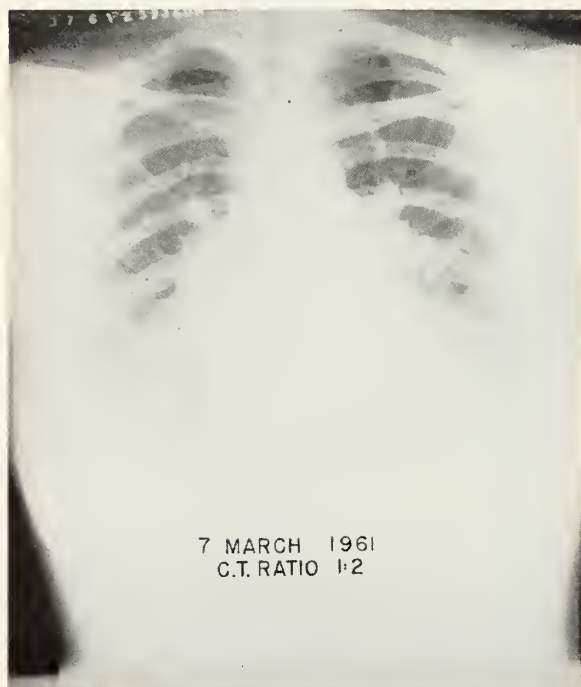


Figure 6. Case 2. Chest X-ray, March 7, 1961, showing cardiomegaly, increased hilar markings, increased lung markings, and a prominent pulmonary outflow tract.

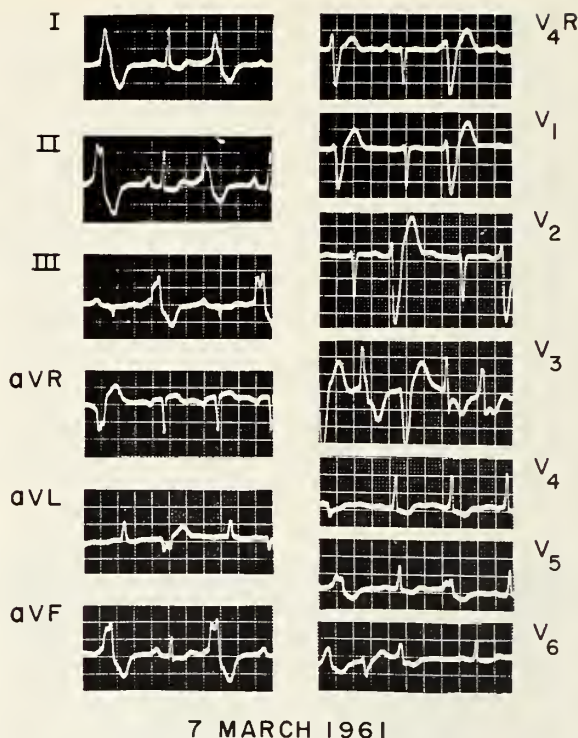


Figure 7. Case 2. Electrocardiogram, March 7, 1961, frequent premature contractions in a bigeminal pattern, digitalis effects, and left axis deviation.

was established. She was treated with sodium restriction, continued digitalization, diuretics, and bed rest. These measures resulted in a weight loss of ten pounds and disappearance of her bigeminal rhythm.

On March 25, 1961, operation was done using a sternal splitting approach and extracorporeal perfusion (Kay-Cross oxygenator) with moderate hypothermia to 23° C. After opening the pericardium, a noticeably hypertrophied right ventricle with dilatation of the pulmonary artery and a prominent thrill over the distal part of the right ventricular outflow were noted. Right ventriculotomy was done, and the right coronary sinus of Valsalva was seen to have prolapsed into the right ventricle through a high ventricular septal defect, 0.5 cm. in diameter. The prolapsed aortic valve cusp had a 0.4 cm. perforation. This was opened to the free edge of the valve and then both margins approximated with a continuous suture of 0000 silk. The valve leaflet was returned into the lumen of the aorta and the ventricular septal defect closed with interrupted sutures of 000 silk in two layers.

The postoperative course was essentially uneventful and she was dismissed from the hospital on her tenth postoperative day. On a return visit, May 5, 1961, she reported complete relief of her symptoms with no further dyspnea or orthopnea. Because of

TABLE II
CARDIAC CATHETERIZATION DATA—CASE 2

Site	Oxygen Content	Pressure	
	VOL. %	S/D	MEAN
IVC	14.0		4
RA:near IVC ..	13.0, 13.2		
:mid RA ...	12.3, 12.6		4
RV	14.5, 14.6		
RV	13.2, 13.1	48/0	21
RV Outflow ...	15.9, 15.9		
MPA	14.0, 15.0	37/16	25
LPA	14.8, 14.8	37/16	22
Aorta	17.2, 17.4	88/46	70
Calculated Cardiac Output: 5200 ml/min.			
Calculated Pulmonary Flow: 9400 ml/min.			
Calculated left to right shunt: 4200 ml/min.			
HB: 13.7 gm%			

tive heart failure follows in weeks or months. The outstanding physical findings are a bounding Corrigan type pulse and a loud precordial machinery murmur located somewhat lower than the typical murmur of ductus arteriosus. Although the diagnosis should be suspected by history and physical examination, confirmation is obtained by cardiac catheterization. Aortography and cineangiography may demonstrate the defect but are not essential in diagnosis. Ductus arteriosus, aortic-pulmonic window, and coronary or chest wall arterio-venous fistulas are other lesions which must be considered in the differential diagnosis.

Without treatment death usually occurs from congestive heart failure, often with superimposed bacterial endocarditis. In Sawyers' collected series the average age of death was 33.5 years with a mean survival following rupture of 3.9 years when two survivors of ten and fifteen years were included. If these two were excluded the mean survival following rupture was one year.

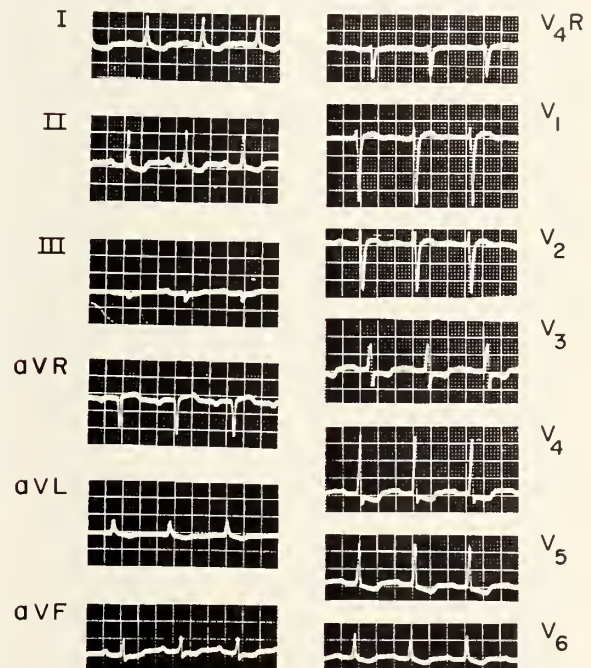
This anomaly is not an uncommon cause of a loud machinery murmur along the left sternal border and must be considered in the differential diagnosis of this auscultatory finding. After diagnosis surgical repair is indicated and from the reported cases presents a relatively low mortality and morbidity.

her ventriculotomy she had been maintained on digitalis and salt restriction. Physical examination at this visit showed a blood pressure of 120/70 and a regular pulse rate of 90. Auscultation showed a grade II systolic murmur along the left sternal border, no diastolic murmur, and a normal pulmonary second sound. Electrocardiogram (*Figure 8*) demonstrated a first degree A-V block, digitalis effect, and regression of the previous ventricular hypertrophy. She was instructed to continue her digitalis and salt restriction, and to resume normal activities.

Discussion

Aortic-cardiac fistulas are usually congenital in origin and have been demonstrated due to a loss in continuity between the media of the aortic wall and the aortic valve ring. A somewhat similar deficiency lower in the heart probably accounts for the development of ventricular septal defects. This related embryologic origin seems to account for the fact that 25 per cent of aneurysms of the right coronary sinus are associated with ventricular septal defects. Aortic sinus aneurysms have also been reported due to syphilis and mycotic infections. Recently, ruptured sinuses of Valsalva due to stab wounds, missile wounds of the heart, and as complications following repair of ventricular septal defects and tetralogies of Fallot have been noted and successfully treated.

The sex incidence is relatively equal. In the majority of the patients there is an abrupt onset of symptoms usually accompanied by severe chest pain and significant dyspnea as in our second case. Conges-



5 MAY 1961

Figure 8. Case 2. Electrocardiogram, May 5, 1961, showing first degree A-V block with digitalis effect and less left ventricular hypertrophy.

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Excellence

(Continued from page 43)

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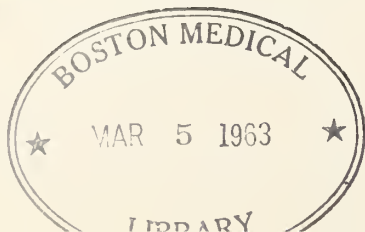
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Biliary Obstruction

A Case of Common Bile Duct Obstruction As a Complication of a Duodenal Diverticulum

FOUNT K. HARTLEY, M.D., *Wichita*

Chief Complaint

A 66-year-old white aircraft factory janitor was seen in my office on June 20, 1960, with the chief complaint of "red urine" for a period of two weeks. There was no complaint of dysuria or frequency accompanying this urinary complaint. The patient had noticed four episodes of cramping, upper abdominal pain for the past two or three weeks. He had noticed no clay-colored stools nor had there been any bowel complaints during this time. The sole physical finding on examination was a rounded, tender mass in the right upper quadrant and the urine was positive for bile at this time. The blood pressure was 170/110, temperature was 98.6, the pulse was 80 and regular, and the respirations were 18.

Past History

The patient underwent a hemorrhoidectomy in 1931. He was first seen on December 23, 1957, at which time he was complaining of intermittent episodes of gastric distress, gaseous distention and eructation of "bitter bile." He was admitted to Wichita-St. Joseph Hospital for a thorough evaluation. Roentgenograms of the gastro-intestinal tract revealed an antral gastric ulcer with antral spasm, diverticulosis of the hepatic flexure and transverse colon and a normally functioning gall bladder without stones. Positive laboratory findings on this ad-

An unusual case of common bile duct obstruction is presented in which a duodenal diverticulum caused the obstruction. The attending edema, fine sandy concretions, and possible angulation of ampullary region were probably aggravating factors.

A brief discussion of duodenal diverticula and their management is presented.

mission included a slightly elevated cholesterol of 242. Repeat roentgenograms were made on January 13, 1958, which revealed some improvement of the gastric ulcer but a third film on February 10, 1958 (*Figure 1*), showed the ulcer to be present with a secondary finding of a duodenal diverticulum in the second portion of the duodenum. It was felt that a gastric ulcer that had shown only minimal improvement should be excised, therefore the patient was taken to surgery on February 14, 1958, and a 2/3 gastric resection with a Billroth I anastomosis was performed. Tissue slides revealed a benign ulcer. Following this operation the patient had an uneventful recovery and returned to work in March, 1958. He was symptom free until June, 1960 at which time he came into the office with the chief complaint of urinary discoloration.

Hospital Work-Up and Course

The patient was admitted to Wichita-St. Joseph Hospital on June 20, 1960, for evaluation of the dark urine and abdominal mass. Physical findings revealed a nonicteric man with a tender, rounded mass in the right upper quadrant which moved downward to the examining hand on deep inspiration. Laboratory examination at this time revealed a Bromosulphalein of 4.5 in 45 minutes. The alkaline phosphatase reported in Bodansky units, was 7.4 on June 21, 1960, and 8.15 on June 25, 1960. Serum amylase was 37 Somogyi units, bilirubin total, .37 with direct .25 and indirect .12, SGOT 47 units, SGPT 136 units, pro-



Figure 1

thrombin time 85 per cent of normal, serum iron 125 gamma, cephalin flocculation negative at 24 hours and a trace at 48 hours. Thymol turbidity was 1.20. The urobilinogen was positive in 1:100 dilution. The hemogram revealed a red count of 4.6 million, a white cell count of 6.3 thousand, a hemoglobin of 12.4 grams, reticulocytes 0.9 per cent, and a VDRL was non-reactive. A direct Coombs was negative. Roentgenograms on June 23, 1960, by means of a duodragraffin study revealed the common bile duct to be above average normal size with non-opacification of the gall bladder to and including 24 hours. The common bile duct de-opacified in 60 minutes. Oral dye on two consecutive days failed to reveal evidence of a functioning gall bladder. The chest film was essentially negative and an electrocardiogram was within normal limits. A film of the stomach on June 21, 1960 (*Figure 2*), revealed the post-surgical stomach

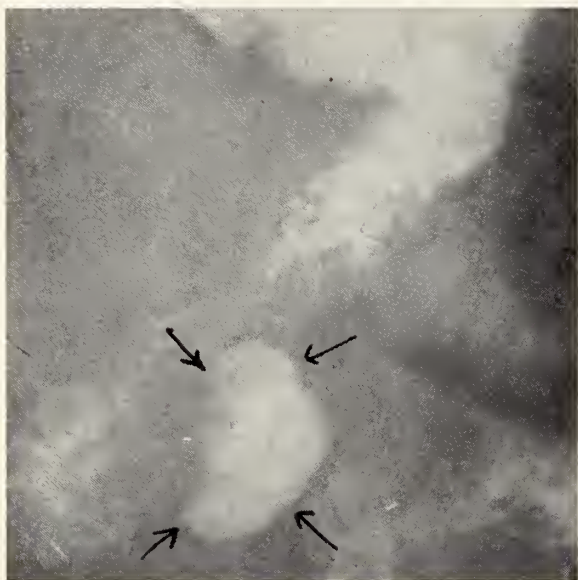


Figure 2

with the perfectly functioning Billroth I anastomosis and no recurrence of gastric disease. It was pointed out on this roentgenogram that the duodenal diverticulum had attained a much larger size than was shown on the film on February 10, 1958. At this time a tentative diagnosis of hydrops of the gall bladder with possible common bile duct obstruction was made and surgery was planned.

Surgery

On June 30, 1960, the patient was taken to the operating room where, under Pentothal, fluothane, nitrous oxide and oxygen anesthesia, a right rectus incision was made and the abdomen explored. There was no free fluid found in the abdominal cavity. The

gall bladder and the common bile ducts were grossly dilated but the serosal surfaces showed no evidence of acute or chronic inflammation. The common bile duct was opened and fine sandy concretions were removed by scoops from the terminal common bile duct. The terminal portion of the common bile duct would not accept a probe or dilator. The duodenum was then reflected (Kocherized) to facilitate examination of the retroduodenal area. At this time a transduodenal approach was used and it was then that a large duodenal diverticulum could be palpated within the lumen of the duodenum. The inlying common bile duct probe could be felt to terminate in the walls of the diverticulum. No impacted stones or tumor mass could be palpated within the biliary system but there was one freely floating gallstone found in the gall bladder. A node from the common bile duct area was sent to the pathology laboratory and was reported as showing reticuloendothelial hyperplasia. The pancreas was normal. Because of gastric resection, the patient's age, and the formidable outlook of a reimplantation operation of the common duct it was felt that the most expeditious procedure should be used and a cholecystoduodenostomy was performed at this time. The gall bladder was anastomosed to the already existing transduodenal incision. A T-tube was placed within the common bile duct and good reflux of normal golden yellow bile was seen. The anastomotic area was drained with a Penrose drain and the abdomen was closed in layers.

Follow-Up

A follow-up study on this patient revealed an uneventful hospitalization. A T-tube cholangiogram was done on July 3, 1960 (*Figures 3 and 3A*), and showed the cholecystoduodenostomy duct to be functioning. The T-tube was removed on the 14th post-operative day. Follow-up in the office has been good except for a hypochromic anemia which has been treated and responded promptly to hematinics. On September 14, 1960, the hemoglobin was 13.1 gms. and the patient had returned to pre-operative weight. He complained of abdominal gas and soreness but antacids have always relieved this. The patient was seen again on March 9, 1961, at which time he stated that there had been no gas, indigestion, or pain noted. The dreaded complications of cholangitis in such a by-pass operation has not occurred. A final intravenous cholangiogram was done on May 9, 1961. This film revealed gaseous distention of the gall bladder and functioning cholecystoduodenostomy. Superimposition of film 3 and this one revealed no significant change in biliary structure, size, or direction.

Discussion

The overall incidence on duodenal diverticula is judged to be between 10 and 15 per cent of the popu-

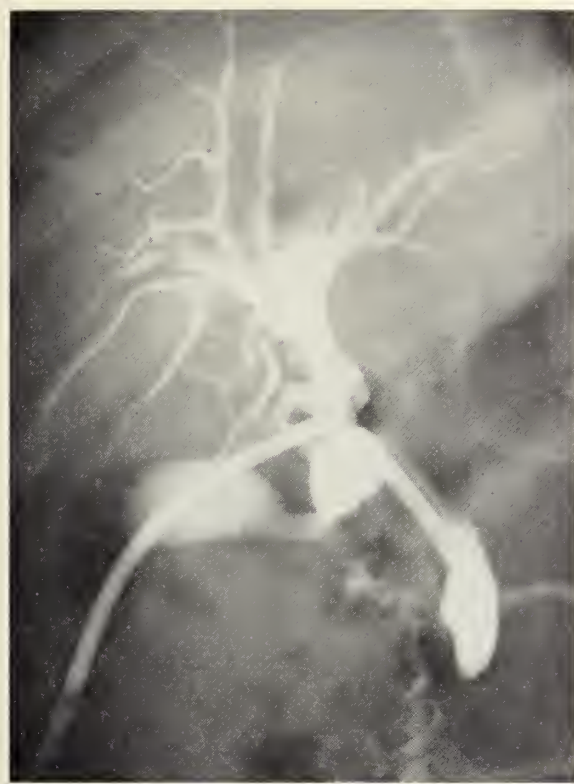
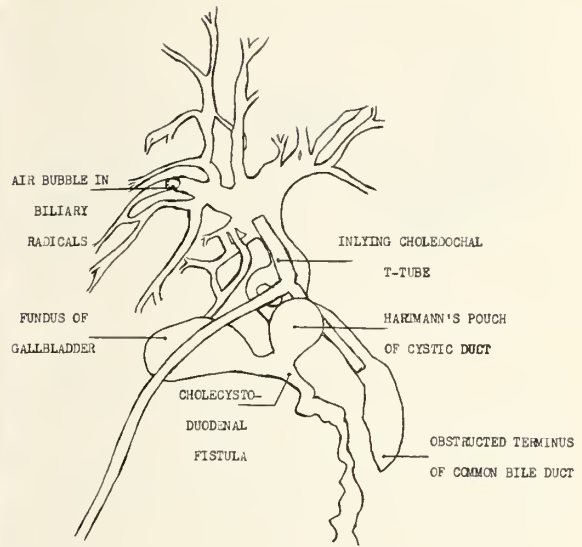


Figure 3



EXPLANATORY SKETCH OF T-TUBE CHOLANGIOGRAM

Figure 3A

verticulum is indicated." Cullett, et al report the only known case of common bile duct terminating in a diverticulum which was demonstrated roentgenologically. In other cases of common bile terminating in a duodenal diverticulum the cases were discovered post mortem.

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Fact or Fallacy?

You could hear almost as well without ear flaps. True. The part of the ear you can see has virtually no function. However, it is believed that our ancestors could fold them forward to keep out noise. You still have nine muscles in your ears you can't move—unless you can wiggle your ears.

Sounds reach you faster in warm weather. The higher up you go, the less well you hear.

lation. Priestly and Judd state that duodenal diverticula almost always occur along the mesenteric border of the duodenum. The reason for occurrence in this region is commonly thought to be due to weakness in the muscular layer at the site where mesenteric vessels enter the intestinal wall. Because of the common location of a diverticulum along the concave border of the duodenum, the lesion is usually not apparent on initial exploration. Approximately 65 per cent of all of these diverticula occur in the second portion of the duodenum near the ampulla of Vater. It is indeed surprising that obstructing lesions do not occur here more frequently. A definite diverticulum that may cause pressure on the biliary or pancreatic ducts and even obstruction of the duodenum has been reported but all these complications are rare. A case has been reported by Blegen, Swanberg, and Cox in which the common bile duct emptied into a diverticulum associated with a peptic ulcer. This case was treated by partial gastric resection with removal of the first and second portions of the duodenum and reimplantation of the common bile duct into the duodenal stump. Zinninger has stated that if a diverticulum is asymptomatic it should be left alone "except in those instances where the diverticulum is large and retains barium for 24 hours or longer and in which no other cause for the patient's symptoms can be demarcated, operation for removal of the di-



Renal Cell Carcinoma With Solitary Pulmonary Metastasis

Edited by TOMAS MARAMBA, JR., M.D.

Dr. Miller (Moderator): The case to be discussed today is an interesting one whose management demonstrates changes which are continually taking place in our concepts in the treatment of malignant diseases. The case will be presented by Dr. Spencer.

Dr. Spencer (Resident in Surgery): This is the case of a 52-year-old Mexican man who works in a meat packing firm. He was admitted to the University of Kansas Medical Center on October 25, 1961, with the chief complaint of a "spot in the lung." About a month before admission, he had pain in the right chest which radiated to both shoulders and to the right flank of the abdomen. He had general weakness, malaise, occasional night sweats and weight loss of about fifteen pounds. On hospitalization elsewhere, he had spiking fever. Chest x-rays showed "fluid in the right side of the chest." After two weeks, the fluid was absorbed, but a "spot" was noted in the right lower lobe for which he was referred to this medical center for evaluation.

He has smoked for thirty years, consuming one pack of cigarettes per week.

On physical examination, he had a blood pressure of 138/60 mm Hg., a pulse rate of 72 per minute and a respiratory rate of 14 per minute. There were dullness and diminished breath sounds at the base of the right lung, posteriorly.

Pertinent laboratory examinations: Urinalysis showed a trace of albumin, no sugar, 10 to 20 red cells per high power field and 2 to 3 hyaline casts per high power field. Hemoglobin was 9.5 gm. per cent and hematocrit, 33 vol. per cent. White cell count was

22,480 per cu. mm. with 84 per cent polys. Total serum protein was 6.87 gm. per cent and serum albumin was 2.87 gm. per cent. Other examinations, including febrile agglutinins, were normal except for an abnormally high glucose tolerance curve.

Because of the patient's intermittent elevation of temperature up to 102.8° F., we decided to look into the possibility of a granulomatous process. The second strength tuberculin and histoplasmin skin tests were positive. Sputum and gastric washings were obtained for culture of acid-fast bacilli. Because of the presence in the urine of 10 to 20 red cells per high power field, an intravenous pyelogram was taken.

Dr. Miller: Dr. Tice, could you show us the x-ray films?

Dr. Tice (Radiologist): The intravenous pyelograms show the right kidney to be slightly larger than the left. The left calyceal system fills earlier than the right. Subsequently, a dilated and somewhat irregular right collecting system is noted. The rest of the urinary system appears normal. In other words, there is enlargement of the right kidney and irregularity of its calyceal system indicating a tumor mass in this kidney extending into the renal pelvis.

The chest roentgenograms show a small circumscribed solitary deposit in the posterior region of the lower lobe of the right lung (*Figure 1*). The hilar shadows show areas of calcification. The heart and bony structures appear normal. Planograms of the right lung show a fairly discreet nodule in the lower lobe with no evidence of calcification. Calcium deposits may be of help in the diagnosis of a granulomatous process.

Dr. Spencer: With the radiological report of an enlarged kidney, we tried to palpate for it, but we could not feel a tumor mass in the patient's abdomen. On November 2, 1961, a thoraco-abdominal explora-

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Maramba is a resident-fellow in pathology, supported in part by U.S.P.H.S. grant 2G-125.

tion was performed. A solitary mass was noted in the lower lobe of the right lung and a tumor was found in the right kidney. A right nephrectomy and partial adrenalectomy, and a subtotal resection of the lower lobe of the right lung were done.

His postoperative course was uneventful. His temperature returned to normal and he felt well. He was discharged ten days after the operation in a satisfactory condition.

Dr. Miller: Mr. Reyes, how do you account for the fever in this patient?

Mr. Reyes (Student): If this were a granulomatous process, the fever would be due to chronic infection and the toxemia associated with it.



Figure 1. Posteroanterior chest x-ray showing a circumscribed solitary nodule at the periphery of the right lower lung field (arrow).

Dr. Miller: Mr. Etzenhouser, what do you think is the cause of the fever?

Mr. Etzenhouser (Student): There are certain tumors which are associated with fever, the mechanism of which is not known. In particular, tumors of the kidney are known to have this association.

Dr. Miller: What other preoperative studies can be done to ascertain the nature of a coin lesion in the lung?

Dr. Spencer: A scalene node biopsy and Papanicolaou smears of the sputum and urine can be done.

Dr. Miller: How effective are Papanicolaou smears of the urine in the diagnosis of renal tumors?

Dr. Mantz (Pathologist): Percentagewise there is a poor recovery of renal cancer cells in Papanicolaou smears of the urine. Of course, this would depend on the location of the tumor. With well-selected specimens obtained through a catheter, there is a very high recovery rate of tumor cells in neoplasms of the renal pelvis. Much lower percentages are observed, how-

ever, in tumors of the renal parenchyma. Nonetheless, a striking diagnosis can be made in the odd case by this means.

Dr. Miller: Dr. Mantz, what did examination of the surgical specimen show?

Dr. Mantz: I would like to congratulate Mr. Etzenhouser in selecting tumors of the kidney as a source of unexplained fever, because renal cell carcinomas are singular in their association with fever of otherwise unexplained cause. A rather extensive review of the vast material available at the Mayo Clinic shows that fever was the most common systemic symptom of lesions of this variety.

The specimen received in the laboratory showed the kidney to be occupied throughout two-thirds of its central portion by a large and typical tumor measuring 9 cm. in greatest dimension (*Figure 2*). It had all the characteristics described many years ago under the misnomer of "hypernephroma" by Grawitz. Grawitz thought that the neoplasm was derived from adrenal rests or from adrenal tissue. In this case, the adrenal gland was not involved. Although there has been some dispute concerning the origin of the lesion since that time, most now agree that it is of renal tubular origin. In some instances the morphology is entirely different from that observed in adrenal tumors.

The lesion had grown outwards extensively in an exophytic fashion and projected into the perirenal fat. Its trabecular connective tissue divided the growth into lobular masses. A careful dissection of the renal vein is important in such a case because a very high predilection for venous invasion is known to exist.² In this case, no venous invasion was found. Likewise, these tumors bring themselves to clinical attention by invasion of the renal pelvis and, although we see the pelvis to be encroached upon, no actual ulceration was noted grossly or microscopically.

Histologically, we see a somewhat atypical picture. The neoplasm is quite cellular, showing very little necrosis. The lesion is highly vascular and many tiny capillaries course through the trabeculae. There are delicate connective tissue septa producing a somewhat lobular pattern. The cells, for the most part, are relatively large and pale and many are reminiscent of the adrenal cortex (*Figure 3*). Others, however, display a fine granularity not unlike that observed in certain forms of renal adenoma. In certain areas, however, a marked degree of pleomorphism is observed. In such areas, the tumor cells become spindly, suggesting the possibility of a sarcoma. This is a histologic picture which is not widely appreciated in renal cell carcinomas which occasionally are so spindly as to lead to a misdiagnosis of sarcoma.

Recently, Riches,² and Humphreys and Foot have re-evaluated the relationship between prognosis and cell types. They conclude that one can predict with



Figure 2. On the left side is the cut surface of the right kidney which contains a large tumor mass. On the right side is seen the incised solitary nodule in the lower lobe of the right lung having the same features as the renal neoplasm.

reasonable accuracy the future behavior of such a lesion. Those that are composed predominantly of the clear cell variety, especially when disposed in a tubular pattern, have the best prognosis. Those presenting with a more spindly type of morphology have a relatively poor prognosis. We found no evidence of venous invasion microscopically although most certainly such has occurred.

Sixteen lymph nodes were dissected from the hilar area of the kidney and in one of them partial replacement by metastatic tumor was found. The major portion of the metastatic lesion has a sarcomatoid pattern. This tumor, in contradistinction to other carcinomas, usually metastasizes by way of the blood stream, as indicated by statistics which show that the lungs and bones are most frequently involved by metastasis. Lymph node involvement is third in incidence.

Included with the specimen was a segment of lung representing the basal portion of the right lower lobe (Figure 2). There was a round, discreet, well-circumscribed nodule measuring 1.2 cm. in diameter, resembling a cannon ball and strongly suggesting a metastasis disseminated by the venous route. Histologically, the lesion is composed largely of large, clear, so-called "hypernephroid" cells. This is an expanding lesion as indicated by the presence of compression

atelectasis in the surrounding lung parenchyma. In the center of this nodule is a bronchus which has been ulcerated by the growth in two areas and in this region a small polypoid mass appears to project into the bronchial lumen. One might anticipate from this finding that the sputum may have contained malignant-type cells which might have assisted in the making of the diagnosis had cytologic studies been performed.

Dr. Miller: Dr. Kittle, could you discuss the clinical problems presented by the case? Would you also indicate to what lengths should one go to determine whether a peripheral solitary lung nodule is a primary or a metastatic lesion and to search for the site of a primary tumor elsewhere?

Dr. Kittle (Surgeon): This case was not as clear cut preoperatively as the presentation today might seem. He was referred to us primarily because of the nodule in his right lower lung field and persistent fever. Initial attempts were directed toward determining the nature of the lung lesion and etiology of the fever. If one is confronted by a nodule in the lung, one tries to ascertain if this is a primary tumor, a metastatic lesion, or an infectious granuloma. We had considered the possibility of primary bronchogenic carcinoma because this was an adult smoking male. In reviewing 215 cases of pulmonary solitary

nodules, Davis, et al., found 36 per cent to be primary bronchogenic tumors. Although a spiking type of fever may be observed in bronchogenic carcinoma,⁵ this is not very common and it is generally associated with a large tumor. The fever itself is not of diagnostic help because it does not tell us whether we are dealing with an inflammatory lesion or a neoplasm.

Secondly, we were concerned about a solitary metastatic lesion. After investigating the sources of pulmonary metastases, Schell found that approximately one-third originate in the colon, rectum, and kidney. The high incidence of solitary metastases from these organs encourages an aggressive surgical attack in these lesions. There are simple tests for screening these organs. An intravenous pyelogram is indicated to see if the patient has a primary kidney tumor. X-ray examination of the entire gastrointestinal tract is usually not fruitful insofar as searching for the source of a metastatic lesion unless the patient has symptoms referable to the gastrointestinal system.

Other primary sources of pulmonary metastasis are the thyroid gland, the testis, the uterus and ovary, and the prostate. One should examine the thyroid and if a mass is palpated, radioactive iodine studies are indicated. The testis and prostate should be carefully palpated in the male and the pelvis examined in the female.

This patient is interesting because, by his routine laboratory studies, it was noted that he had hematuria. It would be difficult and presumptuous to improve upon Cheevy's conclusion that "... malignant renal tumors should be classed with syphilis and tuberculosis as among the great mimics encountered in clinical medicine. By direct pressure, by necrosis or hemorrhage, by extension or by metastasis, they can reproduce the clinical appearance of an amazing variety of disorders." The clinical diagnosis of renal cell carcinoma is generally made on the triad of hematuria, flank pain, and a palpable mass in the abdomen. However, this tumor may remain silent clinically until it is far advanced. Our patient showed only two members of this triad, again emphasizing the vagaries of this tumor. But in addition, he had fever which occurs in 21 per cent of cases of renal cell carcinoma, according to Abeshouse and Weinberg. On the basis of the radiologic findings, the most likely preoperative diagnosis was a solitary metastasis to the lung from a renal cell carcinoma.

Now, what can be done about this patient? Whenever there is the possibility of a metastasis in connection with a primary tumor, one should look at the metastasis first because whether or not a metastasis is present and whether or not it is single or multiple would determine the management of the primary lesion. With this thought in mind, we first examined the lung through the upper end of a thoraco-abdom-

inal incision. The lung nodule seemed to be an isolated metastasis. Dissection into the retroperitoneal space revealed a carcinoma of the right kidney confirming our clinical and radiologic impression. There were no hepatic metastases, nor was there extension to the hilum of the kidney. So, it appeared feasible to remove both the primary renal tumor and the solitary metastasis in the right lung at this one procedure. There are not enough cases of this type to make statistics meaningful, but, as Moersch and Clagett conclude,

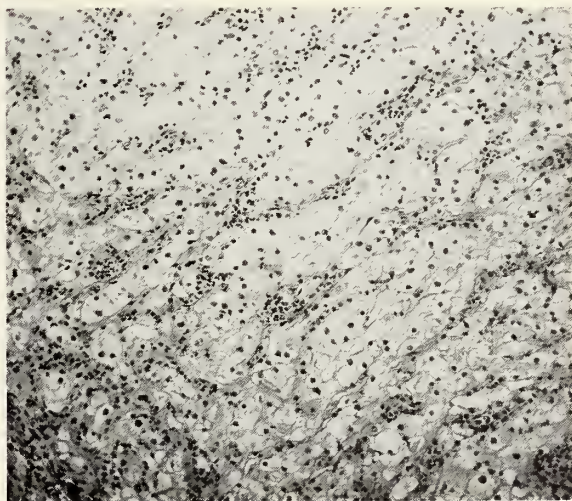


Figure 3. Section showing the typical large clear cells arranged in a trabecular fashion in renal cell carcinoma ($\times 140$).

the removal of a solitary lung metastasis in renal cell carcinoma has been accompanied by an encouraging survival rate.

Renal cell carcinoma is a slow growing tumor compared to many malignant neoplasms. We should consider ten-year survival rates rather than three or five-year survival rates. In a series of 685 cases compiled by Riches,¹⁰ et al., there was an 80 per cent one-year survival, a 44 per cent three-year survival, and a 30 per cent five-year survival rate. With these statistics, it may seem that this tumor has a fairly good prognosis. However, after ten years, there was only a 17 per cent survival rate. Pathologic features such as the cell type, the arrangement of the cells, whether or not cystic degeneration and hemorrhage are present, and particularly the presence or absence of renal vein involvement influence the prognosis of these tumors. In the group in which the renal vein was involved by the neoplasm, there was only a 29 per cent five-year survival rate. If the renal vein were not involved, there was a 55 per cent five-year survival rate,¹¹ almost twice as great.

Recently, it has been noted that renal cell carcinoma is accompanied not only by local symptoms such as

hematuria and flank pain, but also by systemic symptoms such as polycythemia, fever, and amyloidosis.¹² The most common systemic manifestation is fever. There have been several reports of polycythemia associated with renal cell carcinoma relieved by nephrectomy.¹³

Dr. Miller: Dr. Kittle, in cases of pulmonary metastasis with multiple nodules, how should one handle the situation?

Dr. Kittle: When dealing with multiple metastatic lesions in the lungs, one must take into account the location of the primary tumor and the natural history of the lesion. In general, if there are multiple lesions which appear to be confined to an anatomical unit of the lung, i.e., a lobe or a segment, it may be worthwhile to remove this portion of the lung. If there are multiple metastatic lesions all over one lung or bilaterally, it would be futile to attempt a resection. The prognosis is worse than in solitary metastasis.⁹ However, each case must be considered on an individual basis.

Dr. Tice: In diagnosing tumors of the renal parenchyma, an intravenous pyelogram usually is not adequate. For better visualization of the calyceal system, a retrograde pyelogram should be done.

Dr. Kittle: We considered this, Dr. Tice. If the patient did not have a lung lesion, we would have done a retrograde pyelogram. Our feeling was that we were obligated to examine the lung lesion and that inspection of the kidney added little to the magnitude of the operation. So, rather than do another procedure and wait a few days, we went ahead with the operation.

Dr. Miller: Does irradiation therapy have anything to offer a patient with renal cell carcinoma?

Dr. Tice: In case of recurrence, irradiation can offer some palliation. However, one cannot cure renal cell carcinoma with x-ray therapy alone. Irradiation can also be utilized for relief of pain. At present, we would use cobalt therapy. Prophylactic irradiation following surgery may be of value.

Dr. Mantz: The statistics show that palliative irradiation in patients with renal cell carcinoma defi-

nately improves their longevity but does not affect their ultimate prognosis.²

Dr. Miller: It should be re-emphasized that in the assessment of a small circumscribed metastatic lung lesion, approximately one-third of the primary tumors may be discovered by the routine history and physical examination and many of the remainder will be found by doing an intravenous pyelogram and a barium enema.⁶

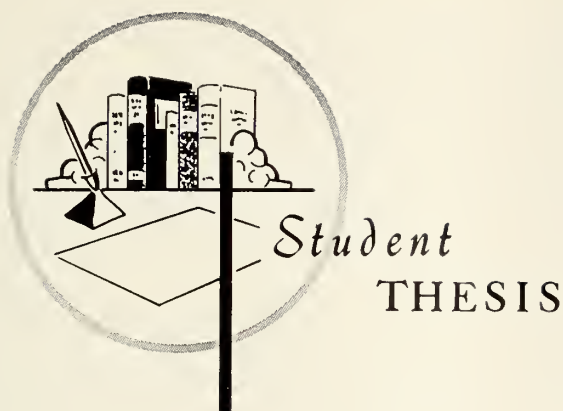
In summary, this is a middle-aged male patient who presented with fever, flank pain, and a solitary mass in the right lung. Intravenous pyelogram revealed a mass in the right kidney. On surgical exploration, this proved to be a renal cell carcinoma with a solitary pulmonary metastasis. A right nephrectomy and resection of the lung metastasis were carried out and it is believed that the prognosis of this patient was improved by this surgical management.

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Thrombotic Thrombocytopenic Purpura

ROBERT M. PETITT, M.D., *Kansas City*

THE SYNDROME designated thrombotic thrombocytopenic purpura by Singer et al. in 1947 is being reported with such increasing frequency that it can no longer be considered an unusually rare disease. Since the initial description of this illness by Moschowitz in 1924 about 130 cases have been reported in medical literature; some of these reports refer to other unrecorded cases.

Clinical Diagnosis

Classically, the diagnosis is suggested by the appearance of a clinical tetrad: an acute febrile illness, hemolytic anemia, thrombocytopenic purpura, and transient, bizarre neurologic signs. The typical case will be diagnosed readily, providing the attending physician is cognizant of the syndrome. Unfortunately, some examples of the syndrome have lacked one or more of the four distinguishing characteristics. The classic symptoms and signs often have been seen with those of other conditions: the illness has been observed in conjunction with rheumatic heart disease, subdural hematoma, tuberculosis, sickle anemia, malignant thymoma, pancreatitis, acute bacterial endocarditis, Raynaud's disease, glomerulonephritis, rheumatoid arthritis, diabetes mellitus, uremia secondary to malignant nephrosclerosis, carcinoma of the cervix, meningococcemia, and active trichinosis.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Robert M. Pettitt is now serving internship at the University of Kansas Medical Center, Kansas City, Kansas.

Pathologic Diagnosis

Although clinical diagnosis may thus be difficult, pathologic diagnosis is unequivocal. The distinctive pathologic feature of thrombotic thrombocytopenic purpura is the presence of innumerable partial or complete occlusions of the small arteries, arterioles, and capillaries by an amorphous or granular acidophilic material. Earlier writers indicated that venous channels were not involved, but one case has occurred in which thrombi were found solely in venules. In at least two cases, typical thrombi have been found occluding larger arteries (brachial and femoral). In most cases, however, the thrombi are found chiefly in the arterioles. It appears that the arteriolo-capillary junction is the favored site for development of the thrombotic lesions; the petechiae of all thrombopenic states occur in high frequency at this site.

The lesions of thrombotic thrombocytopenic purpura have been found in most body tissues. They are commonly found in the heart, pancreas, adrenal cortex, renal cortex, liver, spleen, grey matter of the brain, and bone marrow. They are rarely found in the lungs, hepatic sinusoids, skin, and muscle. In spite of the widespread thrombus formation, infarction and necrosis are usually minor in extent. This, plus the virtual absence of inflammatory reaction about the occluded vessels, is of importance in making the pathologic diagnosis.

The nature of the occluding thrombi is unknown. Moschowitz felt that they were composed of agglutinated erythrocytes; this view was held by some per-

sons as late as 1950. Baehr et al. were the first to study tinctorial reactions of the thrombi; they concluded that the thrombi were not composed of erythrocytes, leukocytes, fibrin or collagen, and were unable to demonstrate the presence of hemosiderin, hemoglobin, amyloid, or lipids in the thrombi. They hypothesized that the thrombi consisted of agglutinated platelets, and, in 1936, proposed the name "diffuse platelet thrombosis" for the syndrome. Some fifteen years later two groups of investigators compared the staining reactions of centrifuged platelet plugs with those of the thrombi, and could detect no dissimilarities. Although this did not prove the thrombi to be composed of platelets, most American writers subsequently adopted the term "platelet thrombosis" (British writers preferred "thrombotic microangiopathy").

In 1957 Craig and Gitlin, using fluorescein-labeled anti-human-platelet globulin from a rabbit, could obtain no specific reaction with the thrombi. Using the same fluorescein technique, these writers and Dixon and Vasquez, working separately, observed reactions suggesting that the thrombi are composed of a saline-insoluble derivative of either fibrin or fibrinogen.

Pathogenesis and Etiology

The relationship of thrombotic thrombocytopenic purpura to other diseases is not clear. Some patients with disseminated lupus erythematosus and polyarteritis exhibit a clinical picture similar to that of thrombotic thrombocytopenic purpura. Rich has suggested that the collagen diseases are manifestations of hypersensitivity mechanisms; Singer has stated that the fundamental mechanism of thrombotic purpura also may be a hyperergic reaction. Beigelman shares this belief, as do Baehr et al., Ellison and Lloyd, Friedberg and Gross, and Gendel. Ehrich and Seifter call the disease "an anaphylactoid reaction." Stefanini and Dameshek state that it is probably an auto-immune reaction of red blood cells, platelets, and the endothelium of blood vessels.

The vascular lesions of thrombotic purpura are differentiated from those of anaphylactoid (Schoenlein-Henoch) purpura and polyarteritis nodosa by the absence of an inflammatory reaction. Although hyaline thrombi are found in disseminated lupus erythematosus, "onion-skinning" of the splenic arterioles and "wire loop" lesions in the kidneys have been seen but twice in thrombotic purpura; these cases are felt to represent coexistence of thrombotic purpura and disseminated lupus erythematosus. It is of interest that thrombotic purpura has been seen in one sibling of a family and systemic lupus erythematosus and polyarteritis in another. In one case of thrombotic thrombocytopenic purpura, the onset correlated with sunbathing. Popper and Kushner refer

to an otherwise undescribed case in which periarteritis was diagnosed two years prior to the patient's death; the terminal event was thrombotic thrombocytopenic purpura.

Clinical Observations

Earlier writers stated that thrombotic purpura attacked the female sex preferentially; the first eight cases to be reported occurred in females. However, development of a larger series has revealed no sex differential. There is no apparent race preference; the disease has been reported in both white and Negro individuals. The age in reported cases ranges from two months to 69 years.

It is apparent that thrombotic thrombocytopenic purpura manifests two forms: (1) an acute disorder, fatal within one or two months of onset, and (2) a more chronic disorder, ending in an acute exacerbation. In 1959 Cahalane and Horn listed sixteen instances of the chronic form (survivals of three months or more) and one hundred of the acute form. The prevalence of the acute form is reflected in the fact that 75 per cent of patients succumb within two months of the onset of symptoms relative to thrombocytopenia.

The signs and symptoms of thrombotic thrombocytopenic purpura fall into two groups. The first group, related to the thrombocytopenia, includes petechiae, ecchymoses of the skin and mucous membranes, retinal hemorrhages, epistaxis, hemoptysis, melena, rectal and vaginal bleeding, and hematuria. Other evidences of thrombocytopenia, i.e. prolonged bleeding time, poor clot retraction, and a positive tourniquet test, are seen. In all but a few instances, the presenting complaint has consisted of signs and symptoms secondary to the thrombocytopenia.

The second group of symptoms fall into vague histories of prodromata given by most patients. These symptoms may include headache, dizziness, depression, fatigue, abdominal pain, nausea and vomiting. Neurologic signs and symptoms usually appear late in the disease, but have been noted during the prodromal period. The most frequent neurologic signs and symptoms include muscular weakness, hemiplegia, drowsiness, confusion, convulsions, and coma.

Upon examination, the patient may exhibit petechiae, ecchymoses, and moderate jaundice. Pallor may be marked. Hepatosplenomegaly is observed in about half the cases. Lymphadenopathy is infrequent. Tachycardia is present, reflecting both fever and anemia. The respiratory, gastrointestinal, and genitourinary symptoms are those of bleeding. Transitory mental and neurologic manifestations are common. The condition of the patient usually deteriorates rapidly, and death supervenes.

Treatment

The fulminant course of the illness, plus the lack of knowledge concerning its etiology and pathogenesis, are reflected in the lack of an accepted, effective therapeutic regime. Many agents have been used; results have been almost universally poor. The rapid deterioration of most patients is reflected in the fact that many are critically ill when first seen by a physician. Many case reports reveal that death occurred within the fifth hospital day.

Splenectomy

Splenectomy was first performed on a patient with thrombotic thrombocytopenic purpura in 1935. It was done in the belief that the patient was suffering from idiopathic thrombocytopenic purpura; the patient did not survive the procedure. Even so, splenectomy remains a logical attempt at altering the course of this disease. It has been of value in the treatment of both hemolytic anemia and idiopathic thrombocytopenia; both of these conditions appear to be a part of the thrombotic purpura syndrome.

Splenectomy has been performed in many subsequent cases, usually without benefit. Some have called the procedure useless. A few remissions have occurred following splenectomy. In 1947 Engel et al. reported a case of three months' duration, in which a one-month remission followed splenectomy. In 1951 Meacham et al. reported two cases treated by splenectomy. In one instance the patient did not survive the procedure, but in the other a remission of 33 months was obtained. This case was atypical in that the splenectomy was performed for "acquired hemolytic anemia." The patient succumbed during a typical thrombotic episode 33 months later, and at autopsy the classic findings of thrombotic thrombocytopenic purpura were observed. At this time the previously-removed spleen was again studied, and lesions were found. In the same year Gardner et al. described a nine-month remission; this case too was atypical in that the patient had exhibited jaundice intermittently for sixteen years. At the time of splenectomy she exhibited the classic clinical picture of the illness. She also had a positive Coombs' test (rare in this syndrome) which reversed following splenectomy. The diagnosis was made at autopsy.

In 1957 there appeared two well-documented reports of patients who were essentially asymptomatic 32 months after splenectomy. One of these patients also received large doses of steroids immediately prior to the remission (the other received small, sporadic doses). Rodriguez and his associates reported a patient living and well twelve months after splenectomy; they observed that splenectomy was at that time the only treatment which had altered the course of the

illness to any degree, and suggested that it be given wider application.

In 1960 Hill and Loeb described three cases of this syndrome. One of the three patients was living and well eight years after splenectomy; the patient was also treated with ACTH prior to splenectomy. The second case in their report expired three days post-operatively; this case will be discussed in more detail subsequently. Their third case was stated to be asymptomatic 27 months following splenectomy. She, too, received massive doses of ACTH and steroids prior to surgery. Her case was atypical in that the left brachial and radial arteries were occluded by thrombi (not otherwise described in the report); her left arm was amputated at the time of splenectomy. The authors of this report questioned the role of splenectomy in obtaining these remissions, yet suggested that it be used in grave cases.

Blood and Platelet Transfusions

Since a moderate to severe anemia of the normochromic normocytic type is almost invariably present, most patients with thrombotic thrombocytopenic purpura receive blood transfusions in an attempt to maintain adequate erythrocyte levels. However, the underlying disorder is an extracorporeal hemolytic process, and large blood transfusions are seldom effective in raising the red cell level for any length of time.

In spite of the theoretic fallacy in treating thrombotic purpura with transfusions, one remission, associated with exchange transfusions of fresh blood, has been reported. The patient, an 11-year-old white female, received a total of five liters of fresh whole blood on two occasions six days apart. Rapid hematologic improvement ensued, and the patient had a sixteen-month remission. Although the authors of the report ascribe the remission to the exchange transfusions (it followed immediately upon the last transfusion), it should be noted that this patient also received ACTH, prednisone, penicillin, tetracycline, streptomycin, testosterone propionate, and ascorbic acid during her hospitalization.

Platelet transfusions and fresh whole blood in plastic or siliconed apparatus have been given in an attempt to elevate platelet levels, but these methods have not met with complete success. Adelson, Heitzman and Fennessey reported shortened platelet survival time in two cases of the syndrome, and Adelson and Stefanini measured platelet survival time in their patient as about three hours. They concluded that exogenous platelets were of no value, they being so rapidly removed from the circulation. Their findings suggest the existence of an extrinsic platelet-destroying mechanism, making platelet transfusion as futile as erythrocyte transfusion.

Anticoagulants

It was recognized in 1925 that the primary pathologic feature of thrombotic thrombocytopenic purpura consisted of myriads of tiny vascular occlusions. It is therefore somewhat surprising that the use of anticoagulants in treatment of the disorder was not suggested until 1947. At that time Singer et al. proposed that either heparin or dicoumarin be used. This suggestion was echoed in 1948. By 1950 twelve more cases had been reported and heparin still had not been given a trial, so the same workers again mentioned the substance, wondering if it should be given to persons with hemorrhagic disorders. In 1951 Hauser also suggested the use of heparin for treatment of thrombotic purpura.

In 1952 Adelson and Stefanini gave a patient sodium heparin IV, 75 mg. every four hours; they abandoned the treatment after two days. Subsequently, Adelson, Heitzman and Fennessey used the same dosage in another patient during the last three days of life. In neither case was there any apparent alteration of the typical downhill course of the disease. In 1955 Singer doubted that anticoagulants could be of value in the disease, pointing out that they might produce more bleeding in a thrombopenic patient. His opinion was influenced by the belief, then prevalent, that the thrombi contained no fibrin.

Heparin was again considered for treatment after 1957, when it was suggested that the thrombi of thrombotic purpura contained derivatives of either fibrin or fibrinogen.

In 1959 Cahalane and Horn reported a case of "chronic" thrombotic purpura in which the patient, a 41-year-old female, had a 25-month remission while on anticoagulant therapy (both heparin and dicoumarin). In summarizing their report, they attached no significance to the use of these drugs.

In 1960, Bernstock and Hirson claimed an apparent remission, secured with heparin. The patient was a 27-year-old white female, who was given heparin in a dosage of 1000 units IM every four hours beginning on the eighteenth day after diagnosis. Rapid neurologic and hematologic improvement occurred over the next two days. The heparin was stopped after four weeks. During this acute episode, the patient also received prednisone and whole blood.

Four weeks after cessation of heparin therapy, the patient experienced an acute exacerbation. On this occasion heparin alone was administered, in the same dosage as previously, for twelve days. Rapid improvement was obtained again, and the patient was reported to be asymptomatic forty weeks after the second episode.

Although no tissue diagnosis was obtained in this case, the clinical picture prior to treatment was so characteristic that little doubt can be attached to the

diagnosis. On the bases of these two reports, heparin certainly deserves further trials in the therapy of thrombotic thrombocytopenic purpura.

ACTH and Adrenal Steroids

The use of ACTH and various adrenal steroids in the treatment of thrombotic thrombocytopenic purpura is based on the same rationale as splenectomy; namely, that they have been of value in the treatment of idiopathic thrombocytopenic purpura and hemolytic anemia. Many patients with thrombotic purpura have received steroids in varying amounts during the terminal stages of their illness, usually with little effect. In most cases the amount of steroid employed was not large, and was given only during the last few days of life. Four patients have died following two to six days of therapy with 300 mg. or more of cortisone per day. In 1956 Delbeke and Cousement reported a case in a seven-year-old in which massive steroid therapy apparently secured a remission of the thrombocytopenia, but did not affect the hemolytic anemia. The child died during an acute relapse 36 days after the start of therapy.

The patients reported by Meacham et al. and Hill and Loeb received steroids, improved hematologically, and were then splenectomized. The second patient of Hill and Loeb did not respond to ACTH; at autopsy his adrenals were found to be extensively involved by the thrombotic process, with areas of hemorrhage and necrosis. Four patients improved following treatment with both steroids and splenectomy. In these cases, it is difficult to attach the credit for remission to either therapeutic effort alone.

In 1959 Burke and Hartmann reported two cases of thrombotic thrombocytopenic purpura, in which remissions had been secured following treatment with large doses of steroids. In one case the neurologic symptoms disappeared after four days of treatment with 300 mg. of cortisone per day. The thrombocytopenia and anemia returned to normal within one month. At the time of the report this individual had been symptom-free for 38 months. No pathologic diagnosis was obtained in this case.

In case two, which was pathologically substantiated, one month of sporadic therapy with corticotrophin and small amounts of steroids did not influence the course of the illness. When prednisone was started in a dose of 100 mg. per day, the neurologic manifestations cleared rapidly. The hematologic picture became normal within two weeks, and the individual was asymptomatic 20 months later.

In only one case has a patient succumbed despite receiving massive doses of steroids over a period of time. The patient of Brittingham and Chaplin died

(Continued on page 70)

The President's Message

DEAR DOCTOR:

I wish to take this opportunity to report on a subject discussed at the Council Meeting which I think is noteworthy and of importance of understanding by the members of the Society. This information was brought to the attention of the Council by Dr. Schmitt, chairman of the Blue Shield Relations Committee, Mr. Proctor Redd of Blue Shield and Blue Cross and Mr. Billings of the Kansas Hospital Association.

This is a project which will be of service to hospitals for the purpose of utilization by the staff of the hospital for reviewing facts pertaining to admissions and discharges, which if desired, can benefit each member of the staff and will also be for the purpose of studying costs for Blue Shield and Blue Cross.

The compilation of data collected by the hospitals is sent to the "Professional Activities Study" of Ann Arbor, Michigan, who process all data on I.B.M. cards at a cost of thirty cents a history. This compiled data is then sent back only to the hospitals who had the material processed. The hospital and staff can then use the material as desired.

May I add that the Kansas Hospital Association endorses this project and the Hospital Association plans to have Seminar on February 4, 1962, to be held in the Broadview Hotel, Wichita, for the purpose of explaining the details of this program and what it means.

Since your President's last letter, the Kansas Medical Society has lost two of its illustrious and loyal members. Dr. Taylor of Norton, superintendent of the Tuberculosis Sanatorium, and Dr. Fegtly of Wichita, a practitioner and for many, many years Parliamentarian of the Kansas Medical Society.



Yours very truly,

A stylized, handwritten signature in dark ink, appearing to read "A. E. Lightman".

President



Editorial COMMENT

The National Foundation

The need for a flexible community medical program is an outgrowth of the changing situation in health care and health problems.

In 1938, when The National Foundation began using March of Dimes funds in what was and still is a unique program to give direct financial aid to polio patients, the crushing financial impact of disease was of foremost concern to the individual patient. Today it is apparent that nearly all our population has, or is gradually gaining, the means of paying hospital and medical bills either through insurance or some other form of assistance.

Twenty years ago, medicine's first concern was still with acute illnesses and the threat of death. Since then, the development of antibiotics and other means for prevention and cure has brought so many acute disease problems under control that the whole picture has changed dramatically almost overnight.

Today, the patients who crowd both hospitals and homes and who are most in need of help and better care are those with chronic and disabling disease conditions.

The outstanding characteristic of such a patient's problem is its complexity. It is complex medically, economically and socially. He needs not simply the help of the traditional family doctor at the bedside, but the specialized skills of a medical team. And his problem involves his family and neighbors and even the whole community in which he lives, calling for cooperative assistance from a broad spectrum of community resources.

With the outpouring of government money for research and professional training and for aid to great blocs of patients, and with money for care from health insurance and other sources, there is fear that the individual patient could get lost in the shuffle.

The government and others tend to deal with patients in groups—the aged, veterans, and so forth.

So the first need is: concern for the problems and needs of the *patient as an individual*.

The second urgent need is for money for *clinical* studies . . . programs aimed at improving care.

Almost all medical schools and teaching hospitals can get ample funds for basic research. There is relatively little money available for improving the art of care and treatment.

The average hospital today is barely able to maintain present levels of patient care. It operates at a deficit, and both hospital rates and health insurance rates are rising day by day . . . just to break even.

It does not have the money for trying something new, for doing things differently. It does not have fund for creative programs designed to solve today's complex patient care problems.

This is where the local chapter of The National Foundation and its volunteer workers can make a unique contribution to health care: by helping to free institutions from the lock step of routine to explore the possibilities for doing things in a new way and doing them better.

There is and always has been a distressing time lag between the development of new knowledge by medical science and its general application to the patient. There is urgent need to shorten this time lag.

Our studies during the past three years have made clear these changing needs in health care. They have dictated areas in which the voluntary health agency can perform a service of benefit to society as a whole.

Accordingly, we have initiated pilot projects . . . in the form of Special Treatment Centers at major hospitals and medical schools in several large cities. These have been supported directly by our chapters with their available March of Dimes funds.

One requirement of these center projects has been that regular and detailed progress reports be filed with the sponsoring chapters . . . for our use at national headquarters to guide us in future programming.

We have found that these centers have proved extremely successful.

This experience, in addition to our long experience with polio centers, has demonstrated beyond question both the need and the value of bringing together teams of medical specialists to deal with the treatment and accompanying economic and social problems of patients and their families.

Our program for patient aid complements the teaching and research programs financed by government and other resources.

It involves two major changes in The National Foundation's patient aid policies, made to permit achievement of immediate and long range objectives.

First—chapters may now use their available March of Dimes funds to aid victims of *all types* of congenital defects. Previously, assistance was limited to children with defects affecting the brain and spinal cord.

Second—procedures have been spelled out enabling National Foundation chapters, individually or collectively, to support two new medical program activities: Special Treatment Centers—for birth defects and arthritis (and polio), and Evaluation Clinics—birth defects and arthritis.

In addition, the chapters will support a wide range of symposia, professional and public educational activities.

The Special Treatment Center program will now be expanded as rapidly as possible.

These chapter-supported centers and clinics complement the Foundation's program for national grants to finance Clinical Study Centers in birth defects, arthritis and polio. Such centers not only provide expert care for patients, but are required to conduct extensive research and teaching programs at the same time.

Through these mechanisms, each of our chapters is offered a variety of ways to devote its resources to the care of individual patients.

As the number of centers of all three types increases, so will there be an increase in knowledge as well as improvement of treatment facilities and techniques to bring us ever closer to the control of chronic crippling disease.

We feel our program is flexible, dynamic and adaptable to individual community needs. We have every reason to believe it will contribute materially to solution of the nation's health care problems.

WILLIAM S. CLARK, M.D.
Director of Medical Care
The National Foundation

Physician Draft

Because of numerous requests for information concerning the physician draft and because of conflicting rumors on this subject, the Kansas Medical Society

visited with the Director of the State Selective Service office for a statement on this subject. The following information came from this interview.

The immediate national call is for 700 physicians to be taken into the Armed Forces. States are not assigned quotas, but are to deliver all available physicians until such time as the 700 have been obtained.

At the present time this includes doctors born on July 1, 1934, and younger, only. Because of commissions to be granted such physicians and because of the relatively short time they will have been in private practice, very few deferments can be obtained. It will be rare that a deferment will be given to such a physician on a hardship plea nor will his service to a community, except under most unusual circumstances, be considered essential.

Physicians born on January 1, 1933, and all who are younger will be taken out of the 3A classification. For the most part they will be called for their pre-induction physical examination after which they will probably be placed in the 1A classification. This includes those physicians now in internships. Eligible interns will be called to duty after the completion of this year's assignment but probably will not be deferred to enter a residency program. Eligible physicians now in residency training may be permitted to complete the current residency year but may be called prior to the beginning of their next year of residency. There is a Public Health Residence Deferment Plan for residents and the Armed Forces Residency Program will defer some reserve officers for resident training.

Even though re-classification will occur for physicians born on July 1, 1933, and for those who are younger, present plans are that the group born between that date and June 30, 1934, will not be called at the present time. The exception is that a physician united with a reserve unit will be called to duty if his unit is taken as a group. This, of course, is outside the Selective Service program.

The above represents the official status as of the present time. It appears certain further calls and alterations in these decisions will be made in the future. As they become known, such information will be given to the members of the Kansas Medical Society through the JOURNAL.

BYRON J. ASHLEY, M.D., *Chairman*
Kansas State Advisory Committee
Kansas State Selective Service

Your ears and your eyes work together. You are less likely to get airsick if you watch the ground or horizon in an airplane, less likely to get carsick if you can look out of the car.



Blue Shield

New Rates for Blue Cross

When the increase in dues for Kansas Blue Cross was announced in December and January for non-group members and many group members, no increase in Blue Shield dues was necessary, according to Dr. James B. Fisher, Wichita, President of Kansas Blue Shield.

Kansas Blue Cross expects to pay out approximately two million dollars more in 1962 than in 1961 for the hospital care of its members, this results in an increase in dues for some Blue Cross members in 1962.

A large number of employee groups are not affected by the changes at this time, because their annual rating study is made at a different time of year on their annual reopening date.

Approval of the new rates was received from the State Commissioner of Insurance early in December. However, Henry Meiners, Leavenworth, President of Blue Cross, points out, "Changes in dues for Employee Group members were not effective until January 1, and the change was effective for Non-Group members on February 1, or their first payment date thereafter."

Hospital costs continue to increase, and more members are using these services, thus causing the need for the increase in Blue Cross dues at this time, Mr. Meiners explained. "During 1961, the cost of one day of hospital care averaged \$28.80 and in 1962 that same day of care will cost approximately \$31.39. In addition, more members are using Blue Cross services," the Leavenworth President went on to say.

For example, he pointed out at the time the approval was received from the Insurance Commissioner, that in 1961, Kansas Blue Cross paid for 330 days of hospital care per month for each 1,000 Employee Group families. It is predicted from the increasing

hospital use trend through the years, that in 1962 this number will increase to 340 days.

In addition, during the past year, Non-Group Blue Cross members have used 408 days of hospital care per month for each 1,000 families, and in 1962 this category of members will use 430 days of hospital care per month.

Members Have an Option

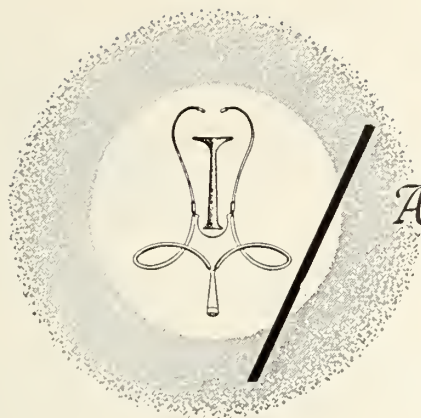
The Blue Cross dues increase being announced for the portion of Employee Groups effective January 1, was \$1.50 per month for family members and 75 cents for single members. A number of options are available to Employee Group members, however, in order that they may take advantage of a lower rate structure, if they wish.

The increase in Blue Cross dues for Non-Group members as approved by the Commissioner of Insurance was \$2.30 per month for family membership, and \$1.15 for single members.

"However, there is also a way that Non-Group members can take advantage of a lower monthly increase in dues. At present, Non-Group members have a \$10 deductible program which means that when they go to the hospital they pay the first \$10 of covered services, and Blue Cross pays the balance.

"For the first time, a \$35 deductible program is being made available to Non-Group members. Under this new \$35 deductible program, the dues increase would be only 90 cents for family members and 45 cents for single members."

I advise that we be a little rougher on our kids, ignore them more and avoid them as much as we can, and they may grow up to be slightly less criminal than they are now.—*Al Capp*



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

Dr. Edward H. Hashinger, La Jolla, California, and **Dr. Claude F. Dixon, Rochester, Minnesota,** have been named national co-chairmen of the distinguished medical teaching program of the University of Kansas School of Medicine. **Dr. Christopher Y. Thomas, Jr.** is chairman of the executive committee for the drive, and **Dr. George W. Wise** is president of the medical alumni association this year. Both are of Kansas City.

The drive to endow professorships in the basic sciences was voted last spring at the annual meeting of the KU Medical Alumni Association. The goal for the drive, which will continue for five years, is 1 million dollars for the over 3,000 graduates. Professorships in basic sciences such as genetics, molecular biology and biophysics are sought.

Contributions are to be vested with the KU Endowment Association to assure a continuing basis of income. All monies contributed will be wholly available for investment.

Dr. Hashinger taught at the Medical Center 37 years before his retirement as emeritus professor of medicine. **Dr. Dixon** of the Mayo Clinic, member of the KU class of 1921, is a professor emeritus of surgery at the University of Minnesota.

The Midwest Cancer Conference will be held March 9 and 10, 1962, at the Broadview Hotel, Wichita. Speakers for the meeting are **Brian Blades, M.D.,** Professor of Surgery, George Washington University School of Medicine; **Walter T. Murphy, M.D.,** Director of Therapeutic Radiology, Roswell Park Memorial Institute, Buffalo, New York; **Joseph J. Kaufman, M.D.,** Assistant Professor of Surgery and Urology, University of California Medical Center; **Warren H. Cole, M.D.,** Professor of Surgery, University of Illinois, College of Medicine; **Michael J. Brennan, M.D.,** Chief, Oncology Division, Henry

Ford Hospital, Detroit; **Mila Pierce, M.D.,** Professor of Pediatrics, University of Chicago; **Harry S. N. Greene, M.D.,** Yale University Laboratory of Pathology; and **Mr. Jim Reed, A.M.A.** Director of Communications.

Postgraduate medical symposia to be offered at the University of Kansas Medical Center during February and March are as follows:

February 12-16	Medical-Surgical Clinical Symposia
February 19-21	Radiology and Radioactive Isotopes
March 5-7	Pediatrics
March 22-23	The Heart: Cardiac Arrhythmias

Four other programs will be offered during April and May.

For complete information, contact the Department of Postgraduate Medical Education, University of Kansas School of Medicine, Kansas City 3, Kansas.

The next scheduled examinations (Part II), oral and clinical, for all candidates, will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from April 9 through 14, 1962. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I Examination will be notified of their eligibility for the Part II Examinations as soon as possible.

Current Bulletins of the American Board of Obstetrics and Gynecology, outlining the requirements for application, may be obtained by writing to the secretary, **Robert L. Faulkner, M.D.,** 2105 Adelbert Road, Cleveland 6, Ohio.

(Continued on page 70)



Personalities—IN KANSAS MEDICINE

C. E. Petterson, M.D., Syracuse, has been appointed to the city council of that city.

Drs. Royal Barker and **James Schultz**, Council Grove, attended a Postgraduate Circuit Course in Manhattan in December. **Dr. James A. Powell** and **Dr. R. W. Blackburn**, both of Council Grove, participated in a similar course at Emporia.

New member of the Shawnee-Mission Board of Education is **Dr. John O. Baeke**, Overland Park, who was appointed to fill the vacancy created by the death of one of the members.

Dr. Dean Gough, Chanute, was elected president of the Neosho County Medical Society at their December meeting. He succeeds **Dr. Donald Ray**, also of Chanute.

Officers elected by the Miami County Medical Society for 1962 are **Dr. W. O. Appenfeller**, Osawatomie, president, who succeeds **Dr. Robert Banks**, Paola; **Dr. Melvin L. Masterson**, vice president, and **Dr. Jack G. Rowlett**, secretary, both of Paola. **Dr. Appenfeller** will also serve as chief of staff of the Miami County Hospital.

Dr. George E. Burket, Jr. and **Dr. Sam Zweifel**, both of Kingman, attended the December meeting of the Pratt-Kingman Medical Society at Pratt. The meeting was held in the home of **Dr. C. V. Black**.

Governor John Anderson has appointed **Dr. Henry Hyndman**, Wichita, as chairman of the Kansas "medical self help" advisory committee. **Dr. Robert**

Riedel, Topeka, has been appointed secretary of the committee. This is part of a nationwide medical self help program to assist citizens in preparation in case of nuclear attack. A planning conference was held in Topeka on January 4.

The medical staff of Providence Hospital, Kansas City, Kansas, has elected **Dr. William E. Burger** as president for 1962. Other officers elected were **Dr. T. V. Batty**, president-elect; **Dr. J. B. Pretz**, vice president; **Dr. E. C. Sifers**, secretary, and **Dr. R. P. McCarthy**, treasurer.

Dr. R. W. Urie was elected president of the Labette County Medical Center staff for 1962 at a meeting in December. **Dr. Urie** succeeds **Dr. Earl A. Martin**, Parsons. **Dr. J. D. Pace**, Colby, was elected vice president.

"The Heart" was the subject of **Dr. H. L. Bogan's** talk before the December meeting of the Baxter Springs Lions club. He talked on the heart and its malfunctions and gave advice concerning proper living habits as an aid toward preventing heart disease.

Dr. Clarence L. Francisco was elected president of the Wyandotte County Medical Society at their meeting December 19. Other officers elected were **Dr. James G. Lee, Jr.**, president-elect; **Dr. Frank J. Strick**, vice president; **Dr. Chester L. Young**, secretary; **Dr. Ronald A. Youmans**, treasurer; and **Dr. Phillip C. Nohe**, to the board of censors for a three-year term. Named as delegates with terms to expire in 1964 were **Drs. John E. Ingram**, **Donald R. Germann**, **Charles A. Crockett**, **Leo. R. Goertz**, and

(Continued on page 74)



Book REVIEWS

MANAGEMENT OF HYPERTENSIVE DISEASES, Joseph C. Edwards. The C. V. Mosby Company, St. Louis, 1960. 360 pages.

This book is a very good discussion of diagnosis and treatment of all types of hypertensive diseases, including sections on electrocardiogram, natural history and management of the patient with hypertension. The special problems in the management of hypertension are discussed. The section on hypertension associated with pregnancy is also worth while. The discussion of the special types of hypertension is very well done. The pharmacology of the hypertensive drugs is also covered. This book is extremely valuable for any physician treating hypertension in his office.—*W.N.*

MEDICAL PHARMACOLOGY, Andres Goth, M.D. The C. V. Mosby Company, St. Louis, 1961. 522 pages. \$11.00.

Pharmacology is not a subject that lends itself to "adequate" coverage in brief textbooks, but Dr. Goth can now join the select group of authors who have written good, brief books. In the scope of 522 pages (plus 28 pages of index) the subject of pharmacology is covered in the detail and from a point of view that is appropriate for (1) a medical student who needs a book that he *can* read as a unifying tool with a good course in pharmacology and (2) a physician who has a background in therapeutics and who wants to refresh and expand his knowledge of drugs.

This is not a text that emphasizes facts—though enough facts about important type drugs are presented to give one an essential core of knowledge—but rather concepts or principles which are all too often buried in the larger compendious reference volumes. As with any brief book, individuals will deplore certain omissions and what seems to them inordinately brief coverage of their pet drugs. Certain "facts" are open to question, for example the statement that nitroglycerine is given sublingually to avoid the gastric juice without mention of the idea that when given sublingually, the drug is better ab-

sorbed and misses the portal circulation (and thereby hepatic degradation) on its first circuit.

In a book devoted to principles it is unfortunate that the purpose is compromised in some instances by failure to present the structural formulas of related drugs in such a manner as to emphasize the relationships between them. The formulas for the adrenergic amines, as an example, do not point up the similarities that account for the effects that they share nor their chemical differences that are responsible for their pharmacologic and therapeutic differences. It is to be hoped that a second edition will change this.

The author is to be complimented for giving us a readable book, and the publishers have put it into a good format, and bound and printed it well.—*J.D.R.*

HANDBOOK OF SURGERY: Edited by John L. Wilson and Joseph J. McDonald. Published by Lange Medical Publications. Price \$4.00.

This small (4 x 7 inches) book, having 650 pages, is written by a group of the faculties of the University of California School of Medicine (San Francisco) and of the Stanford University School of Medicine (Palo Alto). Crammed into its pages is an amazing amount of information, surprisingly well written, and complete for what it purports to do. The print is small, statements are concise and dogmatic without discussion or much explanation, but information is available. For example, carcinoma of the breast is allocated five and one-half pages; urinary calculi three pages; burns six and one-half pages; myomas of the uterus one page. This is one of a group of handbooks published by the same company, and is rewritten every two years. It is not a complete text of operative surgery (in fact operative technic is omitted in most conditions), but does well what it tries to do—to make quickly available a lot of authentic information in outline or abstract form. It should be quite useful for medical students and for many practitioners as well.—*O.R.C.*

(Continued on page 73)

Thrombotic Thrombocytopenic Purpura

(Continued from page 62)

despite receiving from 300 to 1200 milligrams of cortisone per day during the last three weeks of life.

Antibiotics

A number of patients with thrombotic thrombocytopenic purpura have received antibiotics during the course of their illness. This is usually attributable to the fever they exhibit; blood cultures have been reported positive in only two cases of the illness. There is no evidence that antibiotics are helpful in this disease.

Miscellaneous

A number of other agents have been utilized in treating cases of thrombotic thrombocytopenic purpura. With one exception, there are no remissions associated with their use. Ganglionic block was attempted in one case in which larger arteries were involved. Vitamins have been given in many cases, with emphasis on K and C. Antihistamines, ergotrate, iron, and liver extract have been administered without effect.

In one patient an apparent remission followed therapy with chloroquine phosphate, 250 milligrams four times daily, for ten days. This patient also received massive doses of prednisone and whole blood transfusions during the acute stage of her illness. The patient was symptom-free one year later.

Summary

The sporadic occurrence of remissions in thrombotic thrombocytopenic purpura is puzzling. Remissions have been attributed to a number of therapeutic agents, no one of which is consistently effective.

It should be suggested that this illness may occur in any degree of severity, and that the less severe forms might respond to any of several therapeutic agents. Experience suggests that most cases are refractory to any item in today's armamentarium.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

Announcements

(Continued from page 67)

A scholarship fund has been established at the Kansas University Medical Center, to be known as the Dr. C. F. Taylor Memorial Scholarship Fund. It will be used for research in the medical field. Con-

tributions may be sent to Mrs. Lela Krehbiel, Norton, Kansas, who is treasurer of the fund.

A meeting of the Kansas Obstetrics Society will be held March 17 at the Jayhawk Hotel, Topeka. Speaker for the meeting will be Stuart Abel, M.D., Assistant Professor of Obstetrics and Gynecology at Northwestern University Medical School.

The program will also include a maternal mortality discussion by the Maternal Welfare Committee of the Kansas Medical Society. The physicians attending the session will be invited to take part in the discussion of maternal mortalities. Members of the Kansas Medical Society are welcome to attend the meeting although they may not be members of the Obstetrical Society.

The afternoon scientific session will be followed by a social hour and dinner.

Further information may be obtained from Jack Schroll, M.D., 12th and Main, Hutchinson. Dr. Schroll is secretary of the Kansas Obstetrical Society.

The Kansas City Southwest Clinical Society will present its first annual Spring Hospital Workshop Program on March 12 in the Greater Kansas City hospitals. These workshops are designed to offer the practicing physician a practical and intensive one-day study program with individual instruction and discussion of medical and surgical problems, operative techniques, clinical laboratory procedures, and recent advances in therapy.

The clinical session will be followed by a dinner and scientific program presented by John M. Waugh, M.D., of the Mayo Clinic. His subject will be "Surgery of the Colon."

The registration fee is \$15, or for those who wish to attend the evening dinner and program only, the fee is \$6. For further information contact the Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City 8, Missouri.

Dr. John Higginson, associate professor of pathology at the University of Kansas Medical Center, has been awarded a lifetime grant totaling \$533,375 by the American Cancer Society.

He became the first American Cancer Society professor working in the field of geographical pathology, and the fifteenth scientist to receive a Society professorship.

The grant for cancer research makes possible the establishment of a unit of geographical pathology at the University of Kansas and allows Dr. Higginson to devote his major effort to cancer research until retirement age or until the cancer problem is solved.

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

MONOGRAPHS AVAILABLE IN THE LIBRARY

Hygiene

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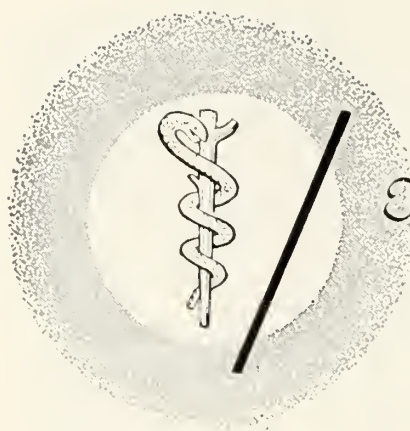
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Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

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The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

MEDICAL CARE ALWAYS READY

The ever-increasing cry that medical help is almost impossible to get at night or for an emergency should not affect persons doctoring in Pratt.

Such a cry would not be applicable to Pratt or the surrounding area for it is never without a doctor on duty.

Pratt has what one doctor calls a "unique set-up" which came about when the hospital was established. The seven doctors who practice here decided that no one in the area should be without medical care. Thus they developed a "rotating emergency call system." Pratt was one of the first cities to establish such a system and remains one of a few who have it.

The call system is operated through the hospital. There are always two doctors on call—one on first call and one on second—for anyone who needs a doctor at any time, day or night, and without a means (whether or not they can pay) test.

One doctor is on first call and one on second for one week and then the schedule is rotated. Every six and one-half weeks each doctor takes one of the positions.

Transients, travelers passing through, and the aged can receive the same medical care. No one is turned down.

Pratt County Hospital serves as a physician exchange. The doctors tell the hospital where they can be found. Patients can always call there to locate their own doctor if he is available. If he isn't available, the person will be given the name of the doctor on first call.

If the doctor is where he cannot be reached by telephone, the local physicians have an agreement with the police department who will locate the doctor called and deliver the emergency message.

Emergency patients brought into the hospital may have their choice of physicians. If they have no choice, the doctor on first call will administer treatment. Local physicians will also go on ambulance calls where they are needed.

All seven Pratt physicians will make house calls and country calls whenever it's needed, "However, change of times does not make for caring in the home," one physician said.

More can be done for the patient at the clinics, both of which are well equipped with complete laboratory and X-ray facilities. Diagnosis is no longer made just by observance. Now tests are made to back up the diagnosis. These tests must generally be made at a clinic.

It is true that there are not as many house calls being made today as formerly because it just isn't practical.

Doctors here are all very interested in prevention of disease in the first place. They have organized innumerable campaigns to get children immunized against polio, small pox, diphtheria, etc., and have had tuberculin test campaigns.

The physicians feel that the trouble here is the negligence of the people in participating in the programs when they have been made available for the last 25 years, one physician commented.

Pratt also has a good public health department. It was the sixth town in the state to have a standard milk ordinance and a milk inspector.

There are also those people who complain about being given bills by the doctor and then having to pay the receptionist instead of paying the doctor as they formerly did. This is done upon recommendation from the income tax department. Record keeping is easier and more complete.—*Betty Kirkendall, Pratt Daily Tribune, December 4, 1961.*

TRIBUTE TO U. S. MEDICINE

The *Topeka State Journal* pens a tribute to American medical science, which has reached some sort of peak in our modern age:

"The number of people who journey from other countries to seek medical care in the United States is a tribute to the unparalleled advances of this nation's medical science.

"Among the latest, and most notable, of such visitors is 59-year-old Ibn Saud, king of Saudi Arabia and one of the world's wealthiest men. The latter circumstance would place any hospital in the world at his disposal.

"The legendary Moslem king, though, chose the United States, flying to this country earlier this month for an operation to remove a cataract from his left eye. Just a week later, the team of surgeons at Boston's Peter Bent Brigham Hospital performed a second operation to remedy a similar condition of the monarch's right eye.

"Both operations were called successful by hospital authorities.

"The above is not to say there are no competent medical staffs and hospitals in other nations of the world. The Soviet Union, it must be admitted, has accomplished some near miracles in advanced fields of experimental surgery. Medical facilities of Germany, Switzerland, England, Austria and other countries are widely recognized.

"But the American system of medical research has attained monumental heights in recent years, particularly in the post-World War II years. No Kansan need be reminded of the world-wide reputation attending the Menninger Foundation in psychiatric research and treatment.

"It is a mark of confidence in this country's medical arts that so many of our overseas friends place their lives and health in the hands of American medicine."—*Dodge City Daily Globe*, December 30, 1961.

HALSTEAD PROJECT

A few months ago, this writer visited the health museum in Hinsdale, Ill., and was impressed with the exhibits. That museum, in a suburb of Chicago, is a magnet for visitors from a large area of the Midwest—particularly groups of children and young people led by teachers.

For this reason and others, the idea behind the proposed health museum at Halstead, patterned after the Hinsdale facility, is appealing. It could become the center of health education in Kansas, just as the

Hertzler Clinic has become a major health facility for treatment.

The late Dr. Arthur E. Hertzler, a pioneer horse-and-buggy physician, contributed a lifetime of service to his patients in the small Kansas community northwest of Wichita. His fame was widespread and deserved. Since his death, his widow, Dr. Irene A. Koeneke, has carried on his interests through the Hertzler Research Foundation.

This museum, the new research programs and the clinic library will be welcome additions to the southcentral Kansas scene.—*Wichita Eagle*, December 30, 1961.

Book Reviews

(Continued from page 69)

CIBA FOUNDATION STUDY GROUP NO. 8: PROBLEMS OF PULMONARY CIRCULATION, A. V. S. de Reuck and Maeve O'Connor. Little, Brown and Company, Boston, 1961. 93 pages.

This is another excellent report of the discussion of pulmonary circulation. It has many interesting reports on pulmonary arterial and venous pressure, regional pulmonary blood flow in mitral and congenital heart disease, pulmonary hypertension, nervous control of the pulmonary circulation as well as other studies.

It is very valuable for anyone interested in pulmonary function.—*G.W.N.*

Superstitions

Why do some tars consider it unlucky to have women on board? Because ships have always been called by the feminine "She" and it figures that a lady ship might be jealous of female competition for her sailors' attentions.

The record of drivers between the ages of 18-25 improved during 1960 but they still were involved in nearly 28 per cent of all fatal accidents—twice what their numbers would warrant.

Pedestrians crossing the street didn't make it on more than 170,000 occasions during 1960. Dead after being struck down by a car were more than 5,000 persons while more than 165,000 were injured.

Personalities

(Continued from page 68)

alternates **Dr. Antoni M. Diehl** and **Dr. Lawrence E. Leigh**.

New officers elected at the December staff meeting of the Memorial Hospital, Arkansas City, are **Dr. Bruce Smith**, who succeeds **Dr. W. G. Weston**, as president; **Dr. Edgar Hinshaw**, vice president, and **Dr. Newton Smith**, secretary. All of the officers are residents of Arkansas City.

Although not a member, the death of **Dr. A. R. Suggs** of Ada, Oklahoma, will be of interest to many members of the Kansas Medical Society. **Dr. Suggs** was a former president of the Oklahoma Medical Society and has appeared at various meetings of physicians throughout Kansas.

A state charter for the newly organized Flint Hill Medical Society was presented at the December meeting by Mr. Oliver Ebel, executive director of the Kansas Medical Society. The five counties represented in the organization are Chase, Morris, Osage, Coffey and Lyon. New officers of the 36-member group are **Dr. Richard F. Conard**, Emporia, president; **Dr. Joseph W. Parker**, Burlington, vice president; and **Dr. Donald Coldsmith**, Emporia, secretary-treasurer.

The first of the 1961-62 Kansas Circuit Course postgraduate medical symposia was held December 5 at Concordia, for all doctors of the area. The lecturers from the Kansas University School of Medicine were **Colvin H. Agnew**, M.D., assistant professor of radiology; **Robert G. Garrison**, Ph.D., associate in microbiology; **Arthur P. Klotz**, M.D., associate professor of medicine and head of the section of gastroenterology; and **Robert T. Manning**, M.D., associate in medicine.

Dr. Emil Goering of Pretty Prairie, has been named Reno County physician by the county commission.

Drs. A. E. Titus and **Leo F. McKee**, Cottonwood Falls, attended the University of Kansas School of Medicine postgraduate course held at Emporia in December.

Dr. Edgar H. Beahm has been appointed chief of staff at Mercy Hospital, Independence. Other offi-

cers for the year are **Dr. Porter Clark**, chief-elect; **Dr. R. G. Carter**, secretary; and **Dr. G. C. Bates**, chief of medicine. Continuing as department heads are **Dr. E. L. Robinson**, obstetrics; **Dr. James G. Hughbanks**, surgery; **Dr. William Chappuie**, anesthesiology; and **Dr. P. E. Barbera**, pediatrics.

Excessive Hair Loss

Extensive hair loss in new mothers is not an uncommon phenomenon, nor one to cause undue alarm, reports **Dr. Yelva L. Lynfield** from the Section of Dermatology, School of Medicine, University of Chicago.

Because normal hair loss seems to decrease during pregnancy and increase after delivery, he studied the effect of pregnancy on the human hair cycle and concluded that heavy hair loss, beginning from one to three months after delivery, "seems to be a general behavior pattern for human scalp hair. Accelerated hair loss after delivery probably occurs to some degree in most women, sometimes with short, sometimes with longer latent periods."

The hair roots of 28 women were examined during and after normal pregnancies. A control group consisted of 30 healthy nonpregnant women.

On the scalp, anagen lasts for several years. Telogen lasts for a few months. Each hair follicle has its own individual rhythm, uninfluenced by immediately adjacent follicles.

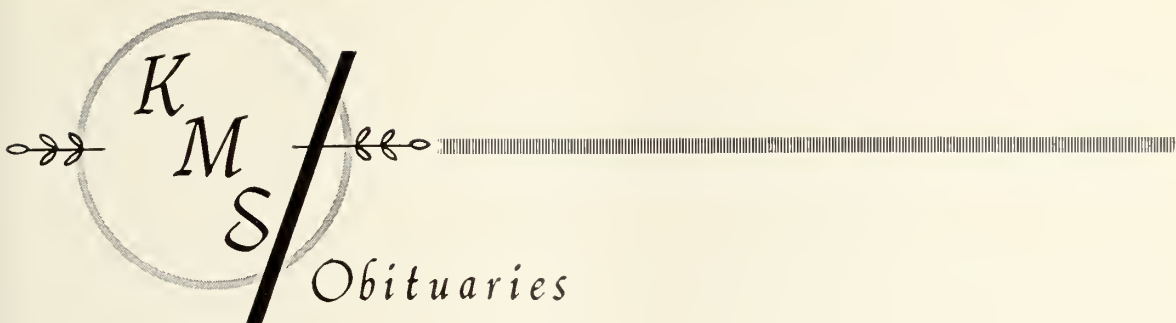
The percentages of anagen hairs found at various times during and after pregnancy were examined. The mean percentage of anagen hairs in the nonpregnant women as well as in women in the first trimester of pregnancy was 85.

In the second trimester the percentage of anagen hairs had risen to 95; in the third trimester it was 94, significantly higher than normal. Five to seven days following delivery it was still 94. Six weeks later it was 76; three months after delivery it was 77. Both these percentages are well below the nonpregnant average.

During pregnancy the conversion of hair from the growth state to the resting state is slowed down. This change would account for the increased percentage of anagen hairs. After delivery the conversion from anagen to telogen is accelerated, probably due to hormonal changes, the investigator explained.

In the present study the time of onset and duration of post-delivery hair loss varied. It began almost immediately in two women, one month after delivery in one and four months after delivery in one. It lasted up to 5 months.

No consistent relationship was noted between the number of pregnancies a woman had and the amount of hair loss, nor did hair loss appear to increase with successive pregnancies.



ARTHUR W. FEGTLY, M.D.

Dr. A. W. Fegtly, 76, died in the St. Joseph Hospital, Wichita, on January 9. He graduated from Tulane University School of Medicine, New Orleans, in 1916, and interned at the St. Francis Hospital in Wichita. Dr. Fegtly began his practice in Douglas, Kansas, in 1917, and remained there until 1923, when he returned to Wichita.

He served as president of the Sedgwick County Medical Society in 1944, and at the time of his death, was chairman of the Constitution and Rules Committee of the Kansas Medical Society. An award for outstanding service in the practice of medicine was presented to him by the Kansas Medical Society in May, 1956. He was also a member of the Masonic Lodge, American Academy of General Practice and The American Medical Association.

Dr. Fegtly is survived by a son, Arthur, of Wichita.

CHARLES F. TAYLOR, M.D.

Dr. C. F. Taylor, 70, died at Norton on December 22, 1961. At the time of his death, he was superintendent of the Kansas State Sanatorium for Tuberculosis.

Dr. Taylor graduated from the University of Chicago and Rush Medical School and served his internship at a hospital in Gary, Indiana. He served as an Army doctor during World War I, and began his private practice in Prairieburg, Iowa, later joining the medical staff of the Iowa State Sanatorium for Tuberculosis. He received his appointment as superintendent of the Kansas Sanatorium at Norton in 1930.

He was a member of the Episcopal Church at Norton, and many medical organizations.

Dr. Taylor is survived by his wife, Hariett, and seven children, including Dr. Thomas Taylor of Phillipsburg. One son preceded him in death.

The Kansas Medical Society—1961-1962

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Clay.....	S. A. Anderson, Clay Center.....	Forrest D. Taylor, Clay Center
Cloud.....	Paul H. Schraer, Concordia.....	Charles G. Foster, Concordia
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Douglas.....	R. I. Canuteson, Lawrence.....	P. A. Godwin, Lawrence
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Finnery.....	J. W. Turner, Garden City.....	H. M. Wiley, Garden City
Flint Hills.....	Richard E. Conard, Emporia.....	Donald Coldsmith, Emporia
Ford.....	Richard E. Speirs, Dodge City.....	Evan R. Williams, Dodge City
Franklin.....	David G. Laury, Ottawa.....	Louis N. Speer, Ottawa
Geary.....	Leslie J. Brethour, Junction City.....	Harry E. O'Donnell, Junction City
Greenwood.....	John H. Basham, Eureka.....	Robert L. Obourn, Eureka
Harvey.....	Robert P. Stoffer, Halstead.....	A. G. Dietrich, Newton
Iroquois.....	I. Roderick Bradley, Greensburg.....	R. H. Hill, Meade
Jackson.....	E. C. Moser, Holton.....	M. Ross Moser, Holton
Jefferson.....	W. A. R. Madison, Nortonville.....	
Jewell.....	C. S. Hershner, Esbon.....	
Johnson.....	John O. Backe, Overland Park.....	E. C. Altenbernd, Overland Park
Labette.....	C. F. Henderson, Parsons.....	E. C. Beaty, Parsons
Leavenworth.....	J. Malcolm Graham, Leavenworth.....	Kenneth A. Powell, Leavenworth
McPherson.....	J. Richard Johnson, McPherson.....	W. J. Collier, McPherson
Marion.....	R. R. Melton, Marion.....	T. C. Ensey, Marion
Marshall.....	R. D. Hughes, Marysville.....	L. R. Laws, Marysville
Miami.....	Robert E. Banks, Paola.....	Melvin L. Masterson, Paola
Mitchell.....	H. B. Vallette, Beloit.....	J. F. Nienstedt, Beloit
Montgomery.....	C. R. Dickinson, Coffeyville.....	John F. Coyle, Coffeyville
Nemaha.....	R. E. Capsey, Centralia.....	J. Howard Gilbert, Seneca
Neosho.....	Donald E. Ray, Chanute.....	Don R. Ahbuehl, Chanute
Northwest Kansas.....	Herman Hiesterman, Quinter.....	Richard Penfold, Quinter
Osborne.....	J. E. Hodgson, Downs.....	J. E. Henshall, Osborne
Pawnee.....	William R. Brenner, Larned.....	S. T. Coughlin, Larned
Pottawatomie.....		Fred E. Brown, St. Marys
Pratt-Kingman.....	Cyril V. Black, Pratt.....	William E. Moore, Kingman
Reno.....	J. L. Perkins, Hutchinson.....	J. C. Schroll, Hutchinson
Republic.....	H. D. Doubek, Belleville.....	Perry U. Hunsley, Belleville
Rice.....	Lewis T. Bloom, Sterling.....	P. E. Beauchamp, Sterling
Riley.....	T. H. White, Manhattan.....	Robert D. Olney, Manhattan
Saline.....	C. I. Weber, Salina.....	S. C. McCrae, Salina
Sedgwick.....	William J. Reals, Wichita.....	J. Walker Buttin, Wichita
Seward.....	Otto F. Prochazka, Liberal.....	Jess W. Koons, Liberal
Shawnee.....	John E. Crary, Topeka.....	C. M. Lessenden, Topeka
Smith.....	Lafe W. Baur, Smith Center.....	V. E. Watts, Smith Center
South Central Tri-County.....	M. D. Christensen, Kiowa.....	Ward M. Cole, Wellington
Stafford.....	O. W. Longwood, Stafford.....	C. Everett Brown, Stafford
Washington.....		L. L. Huntley, Washington
Wilson.....	Ralph N. Sumner, Fredonia.....	C. E. Stevenson, Neodesha
Woodson.....	A. C. Dingus, Yates Center.....	H. A. West, Yates Center
Wyandotte.....	William W. Abrams, Kansas City.....	James G. Lee, Kansas City

For the sixteenth consecutive year the JOURNAL is proud to present the Annual University of Kansas Issue. As has been true before, this number is much larger than our usual issue, and there are a few additional papers which will be published in the near future. The quality of all is such that the issue should be a welcome one to the members of the Society.

Credit should be given to Dr. Jesse D. Rising, who, as Associate Editor of the JOURNAL at the University of Kansas, has done the work of soliciting, collecting, editing, and forwarding to us the papers here presented. It is a task well done, which we all appreciate greatly, and which has proved again that the selection of Dr. Rising as a representative of the JOURNAL at the University was a good one. Additional appreciation is due Dr. C. Arden Miller, the Dean of the School of Medicine, and to each of the faculty who have made contributions to the issue. It is, again, good evidence of the spirit of cooperation between the Society and the University.

Orville R. Clark, M.D.—Editor

The Basic Medical Sciences

C. ARDEN MILLER, M.D.,* and GEORGE W. WISE, M.D.**

THE MEDICAL ALUMNI of the University of Kansas have undertaken a drive to establish a permanent endowment on behalf of the School of Medicine. The amount of money sought is one million dollars. It will be presented to the Medical School as a centenary gift for the support of endowed professorships in the basic medical sciences.

Many things about this project are noteworthy. It is the largest single financial drive yet undertaken on behalf of the University or one of its branches. (In the near future the main division of the University in Lawrence may be expected to announce an even larger drive.) It recognizes one of the most important features of education—distinguished teachers. It places support in the basic medical sciences, that part of the Medical School which has been least well developed and which constitutes the well-spring for new knowledge to improve health and well-being.

The Medical Center has served with distinction the best interests of this State's students and practitioners, and through them the people's health. We deserve to be proud, but pride alone will not sustain the distinction we cherish. This distinction must be re-won for the school by each of us who enrolls as a student, works as an alumnus, joins the faculty, or assumes new responsibilities within the school.

There are circumstances now which require careful planning and hard work. If these are done well, they will bring new achievements to medical education in Kansas. Next year, for the first time in history, Kansas will have a unified four year medical school rather than two half schools. We are nearly freed from the disadvantages of separating anatomy from surgery and biochemistry from medicine. There will be rejoicing among students and teachers who recognize the importance of integrating basic knowledge into clinical applications, and the importance of reinforcing learning in the basic sciences by clinical demonstrations.

Modern scientific medicine grew above superstition, sorcery, antique dogma and barber surgery when the basic medical sciences began to flourish. For centuries men had attempted to control disease by empiricism. They tried something—then stood back to admire or regret the consequences. They administered various potions and concoctions, exorcised evil spirits, read-

justed body humours, prescribed amulets, recited incantations and resorted to other devices of faith, superstition and inspiration. Some of the measures were helpful. What medical student does not learn with fascination the circumstances by which digitalis was discovered in a "witch's brew." Men with heart disease were benefited by that brew. Their benefit can only be described as a happy accident presumably made conspicuous by the many other accidents which were less rewarding.

When physicians and natural scientists became concerned with developing an understanding of the laws of nature, they advanced the control of disease in a short time beyond previous centuries of effort directed toward a defiance of the laws of nature. Bronowski in his book, *Science and Human Values*, expresses this idea as follows:

"Man masters nature not by force but by understanding. This is why science has succeeded where magic failed: because it has looked for no spell to cast on nature. The alchemist and the magician in the Middle Ages thought, and the addict of comic strips is still encouraged to think, that nature must be mastered by a device which outrages her laws. But in four hundred years since the Scientific Revolution we have learned that we gain our ends only with the laws of nature; we control her only by understanding her laws. We cannot even bully nature by any insistence that our work shall be designed to give power over her. We must be content that power is the by-product of understanding. So the Greeks said that Orpheus played the lyre with such sympathy that wild beasts were tamed by the hand on the strings. They did not suggest that he got this gift by setting out to be a lion tamer."

When next a question is raised that education is too theoretical and not sufficiently practical, think back on this situation. Will we not achieve more of a practical nature by developing in students their rare gifts than by training them to tame lions? Centuries of effort directed in an empirical fashion toward the control of disease gained little. Development of the natural sciences in the eighteenth century, the "Age of Theorists," began a series of medical achievements that has been increasing for the benefit of mankind to this very day. What is today practical and immediately applicable may be "antique dogma" of another few years. On the other hand an understanding of the laws of nature as

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they pertain to human health should endure through every new fashion in medical care.

In the sixteenth century anatomy was freshly studied, not from the teachings of antiquity but from new dissections. Many false ideas were corrected; the first of the basic medical sciences became established as the foundation of all medicine. There followed studies on the circulation, vaccination, microscopy, germ theories, and roentgenography. Pathology, physiology, pharmacology, and biochemistry became established as necessary foundations for the study of medicine. Examination of tissues gave way to the examination of cells and that to the examination of molecular structure. The study of structure gave way to the study of function and that to the study of mechanisms. Dr. George Berry has written: "The magnitude of the explosive growth in knowledge today can be emphasized by pointing out that the total accumulation in scientific knowledge is doubling every decade. In the field of medicine it is no exaggeration to say that more knowledge has been won during the past generation than in all previous time."

The enormous growth in medical knowledge has not in all respects complicated the study and practice of medicine. As an understanding of nature has improved, many complex systems of dogma have been discarded. Advances in knowledge of nutrition have superseded the hundreds of different feeding formulae once thought to be necessary for the nourishment of infants. Simple and effective chemotherapy for venereal disease has replaced complex and difficult schemes of therapy. An understanding of mechanisms is ordinarily easier to acquire and easier to use effectively than the memorization of the accumulated experiences of empiricists—even empiricists who are gifted clinicians.

The traditional and well established basic medical sciences have served us well, but they no longer suffice for an adequate understanding of modern medicine. As these sciences have delved more deeply into basic mechanisms they have relied more heavily on other sciences. New interlocking disciplines have developed. Biomathematics, biophysics, genetics, molecular biology, and nutrition now contribute to our understanding of health and disease in ways not available to us by traditional approaches. A recent Report of the Committee on the University and World Affairs of the Ford Foundation summarizes these developments in this way: "American universities are once again in a historic situation where they are challenged to show their capacity for growth and innovation. They cannot educate for tomorrow with yesterday's means."

New basic sciences must be included in the teaching program of the Medical Center. They are necessary not to expand research programs or to aggrandize our resources. They are necessary because traditional

basic sciences are no longer adequate to provide new physicians with an understanding of nature necessary for the treatment of such disorders as metabolic errors, congenital anomalies, and degenerative diseases.

How well equipped are we to undertake this kind of expansion? Our immediate task is to rebuild departments of anatomy, biochemistry, and physiology to full strength, comparable to other departments of the medical school. If this alone is done, we shall be only a decade behind modern medical science. We will not have provided for the teaching of genetics and other important new sciences listed above.

The example of genetics is a good one. The physician needs to prescribe antibiotics with care. Some of them are no longer effective in situations where they once were. Genetic principles of bacterial growth are involved. The physician who appreciates these principles will treat patients with infection more intelligently. Enzyme systems of various human tissues are developed by genetic determinants. Many disorders (mental retardation, diabetes, hypothyroidism, jaundice, nearly a hundred well recognized disorders) are caused by disturbances of enzymes. An understanding of the mechanisms of these diseases is necessary for early diagnosis, treatment, marriage counseling, and protection from many foods and drugs, ordinarily well tolerated, but dangerous in specific situations. Important genetic principles are involved. The physician who understands those principles will have an easier job and will do a better one. Certain viral infections may cause confusion of genetic structure in infected cells. Disordered growth of cells may result. Important principles are involved in understanding a possible relationship to cancer. These principles are vastly more complex than the familiar genetic rules regarding the inheritance of blue eyes. The principles have to do with how the body's cells will function.

Where in the medical curriculum will genetics be taught? It might be taught in biochemistry where much of the basic work on chromosomal structure has been done. It might be taught in microbiology where striking demonstrations of genetic principles can be made with bacteria. It might be taught in preventive medicine where enormous application is made in epidemiology and genetic counseling. Or, lamentably, it might not be taught with thoroughness at all. The principles find such widespread application that they do not fit neatly into the existing categorization of basic medical science. Genetics, biomathematics and biophysics are examples of new disciplines which cement an inter-relationship of all medical knowledge.

This is not a problem which can be solved by administrative reorganization. The new basic sciences and their important principles will be taught only if we have gifted teachers in these fields who appreciate

their widespread significance to medicine. The crux of the matter is the gifted teacher. We don't know his name; we don't know his departmental affiliation. We know only his importance to medical teaching in this University. When we have the resources to support such additional teachers in the new basic medical sciences we will find the best ones available and integrate them and their teachings into our program according to their backgrounds and according to our then existing needs. These needs may be expected to vary substantially one decade to the next.

We cannot provide for these teachers from existing resources or from those anticipated from usual channels. Our resources are strained by creating for the first time a consolidated four year medical school and by the need for strengthening the traditional sciences. We have an extraordinary need. The alumni have provided an extraordinary solution. The solution is in keeping with a noble tradition of this institution: partial dependence on private sources of support. It is consistent with the good spirit and sense of continuing mutual responsibility which exists between the school and its alumni. It is consistent with the established trend of vigorous growth and reliance on gifted teachers who have served the school and its students so well.

Emphasis should be made that we did not approach our alumni, hat in hand, asking for help. They came to us wanting to help and asking to share with us our biggest problems. We discussed our problems, and the alumni themselves elected to help with the one herein described. Much thought was given to the wisdom of raising private funds for the support of professorships at a time when an increasing number of public agencies are providing funds for the same purpose. A strong argument can be made that such outside financing makes even more desirable the availability of unrestricted internal funds for the support of teachers. We must take steps to guarantee flexibility and self-determination to a degree not always possible under special grants. For these same reasons the proposed centenary gift is not committed as to specific fields, specific number of professorships or specific amounts of support for each chair. The funds may supplement other funds or they may provide total support. Most important of all—they will provide us with flexibility.

The size of the centenary gift was determined by the alumni themselves in spite of repeated warnings that the job was formidable. Their spirit typifies the feeling of mutual responsibility which exists between this school and its alumni.

Few medical schools have so well fulfilled their obligations to students and graduates as the University of Kansas. World-wide advances in medical knowledge have been accompanied by local advances

in medical teaching. New buildings, new facilities, an expanded faculty, increased support from appropriations and grants have established a pattern of growth and increasing achievement virtually unmatched in American medical schools. A conscientious effort has been made to foster growth in diverse areas. We have encouraged the development of research out of a belief that learning can best take place in an atmosphere of learning. We have not aspired to become a research institute dedicated solely to the training of investigators and specialists. We have expanded services to patients out of a recognition that the end result of all our efforts must be improved health and the application of medical advances to this end. Services to patients have been expanded insofar as necessary to provide sufficient clinical learning situations for students at all levels of training. A large portion of our expanded clinical services has been economically accomplished through affiliations with other hospitals. We have strived to improve teaching methods through a series of institutes, faculty conferences, committees and forums dedicated to an improvement in organization and content of the teaching program. Perhaps more commendable than any other endeavor have been the programs in postgraduate medical education. A physician's medical education does not stop with graduation—neither does the medical school's obligations to its students. The University of Kansas has fulfilled its obligations with a greater diversity and richness of postgraduate courses than any other center.

Just as there are continuing obligations of a school to its graduates there are continuing obligations of students to their school. The payment of required fees does not fulfill the obligation. Less than two per cent of the entire budget of the Medical Center is met by student fees. Less than 40 per cent of the entire budget is met by public funds through state appropriations. The major portion is financed through gifts, grants and earnings. The Medical Center is a public institution in terms of its responsibilities, but in terms of its financing it is only public assisted.

Alumni and non-alumni friends of the Medical School have assisted it substantially. Support of the Medical School and its programs in the legislature has been consistent and effective. Contributions through A.M.E.F., The Greater University Fund, and the Endowment Association have provided the Medical School with its few unrestricted funds for student aid, acquisition of property and the support of sudden inspiration. There is a strong sense of continuing interest in the Medical School among alumni. More than 300 alumni and wives attended Alumni Day last June. Correspondence from alumni is brisk. The

(Continued on page 88)

The Rural Preceptorship

A Ten-Year Report on the K.U. Program

JESSE D. RISING, M.D.*

TEN YEARS AGO, with the class of 1951, the University of Kansas School of Medicine graduated its first class of medical students who had participated in what was then an experimental program—the rural preceptorship. This experiment in medical education has met with wide interest throughout the country and with a high degree of approval in Kansas. It seems appropriate at this time to report to the physicians of Kansas the results of a ten-year evaluation of this program and to review briefly its philosophy.

Throughout the United States, the many experiments in medical education have stemmed from the realization of medical faculties that an increasingly rapid rate of development in the medical sciences and the resulting changes in medical practice make it doubly important to explore all means whereby curricula can be designed to keep pace with scientific progress. Among the approaches recently favored is a revived interest in a very old educational method, the preceptorship. This method has been used in many schools with varying aims and techniques. In some it has been quite successful; in others, satisfactory; in still others, a failure.

Is the present day undergraduate preceptorship a return to the pre-Flexner era of medical education? Should medical students spend their time in more academic settings? Is the preceptor making a real contribution to medical education? These questions have been raised and attitudes vary widely.^{4, 5}

The University of Kansas School of Medicine has had some experience in preceptorships for a considerable time. Although the present program only dates back to 1950, it is the result of earlier experiences, extensive studies of similar programs in other schools and continuing evaluation of the program by students, alumni, the preceptorship committee and the fulltime faculty of the School of Medicine.

Certain common trends of philosophy are apparent in reviews written by medical administrators, teachers and preceptors.^{1, 2, 3, 4, 6, 7} These relate to the value of the preceptorship in affording students the opportunity to evaluate social, economic, philosophic and environmental factors in medical care.

Five years ago, in his report on the Kansas Pre-

ceptorship program, Wescoe stated that the preceptorship which started as an experiment was "now past the experimental stage" and has become "an accepted part of our basic curriculum." He also stressed the importance of keeping this program fluid enough to maintain pace with the changing patterns of medicine. Goals and techniques of the present program have changed but the fundamental concepts have remained largely the same.

Purpose of the Program

Although the Kansas rural preceptorship program has received a fair amount of publicity, many people still misunderstand it. Some aspects thought to be of primary importance are actually secondary. For example, it is relatively unimportant that students see a wide variety of illnesses and learn techniques and procedures not encountered in the Medical Center. Nor is it particularly significant that they are introduced to practical medical economics. Finally, it is not really a valid educational goal, nor is it the intent of the School of Medicine, to introduce students to any particular type of practice with the hope that they may be recruited to it.

It is vastly more important that the preceptorship functions as a type of retreat for medical students, during which they can develop some mature ideas concerning their own values and goals. This is a time when they can contemplate the physician's place in society as well as his social and civic responsibilities. "Social medicine" in this sense cannot really be taught but it can readily be learned in the proper preceptorial atmosphere. This experience permits each student to participate almost totally in a "medical way of life" with a dedicated physician carefully selected by the school. Under these circumstances the student almost invariably forms a warm personal relationship with his preceptor and identifies with him in many ways.

In the preceptorship situation at the University of Kansas, the student has an opportunity to see patients from all walks of life in the patients' home environment rather than in the remote atmosphere of the medical school hospital or clinic. Office management and medical economics are part of the student's daily life, stimulating an interest which leads to improved understanding.

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Preceptorships are established only in towns of less than 2,500 population. This was done with purpose. The student is able to establish a much closer personal relationship with his teacher in this environment than in a larger community, and at the same time he is better able to observe the environmental effects on his patients. Problems of medical care and the relationship between the physician and his community stand out in bold relief in this setting.

Place in the Curriculum

The preceptorship supposes a certain amount of maturity and ability to accept responsibility and we believe that it is sufficiently important to be a required part of the medical school experience. For these reasons it is compulsory during the senior year.

Each student is assigned to a preceptor for one-half of an academic quarter (five and one-half weeks). The duration was eleven weeks when first instituted, but pressures for time for other activities together with continuing appraisal of the preceptorships by both students and preceptors indicated that it might be possible to decrease this time by half without impairing the program's effectiveness.

Most of those concerned believed that five and one-half weeks was adequate to permit indoctrination, observation and participation in the practice sufficiently to get the desired insights. This shorter duration does not allow the students to become so expert that they can assume excessive responsibilities in the preceptors' practices. Nor is it so apt to lead to discontent because of prolonged separation from family and schoolmates.

Method of Operation

The program is administered by the Preceptorship Committee which operates directly under the supervision of the Dean of the School of Medicine. Members of this committee are members of the fulltime faculty who have developed over many years wide acquaintanceship with physicians in the state. Preceptors are given faculty appointments by the Dean with the rank of Preceptor in Medicine.

Each preceptor is encouraged to adopt his own style of teaching compatible with his personality and with the needs of the student. Preceptors treat students as colleagues, and the professional situation usually makes it desirable to call the student "Doctor." No attempt is made, however, to hide the fact that he is a student. In fact particular care is taken to inform patients that a medical student has come to the community to study medicine and that he is a student from the University of Kansas under the guidance of an "off-campus" faculty member.

Students are expected to make house calls (including night calls) with their preceptors, participate in

hospital rounds and take an active part in the office routine. They are given some definite responsibility for patient care, and after an orientation period this is increased as circumstances warrant. Students are not, however, permitted to practice medicine except under the preceptors' supervision, nor are they allowed to function as a *locum tenens* in a preceptor's absence. Students must not be relegated to the function of a clinical clerk in a local hospital or a surgical assistant for other physicians in the community.

Complete participation in the non-medical as well as the medical aspects of the physician's life is important, and it is expected that the student will accompany his preceptor when he goes hunting or fishing or when he attends medical meetings, service club functions or postgraduate courses. The relationship between each student and his preceptor is necessarily a highly personal one, and is worked out anew for each preceptor-student combination.

The question of menial tasks is often raised by those unfamiliar with the program. Students are required to do a certain amount of laboratory work in connection with the care of their patients when such work would be done by the physician under ordinary circumstances, but he is not assigned to the laboratory or used to supplement the physician's office staff.

Preceptors have assumed the responsibility of providing maintenance for the preceptees and many invite students to live in their homes. Some arrange for married students to bring their wives for the entire preceptorship; the rest encourage the wives to visit.

It is evident that physicians who participate in the program devote much of their time and thought to this endeavor, and the medical school faculty greatly appreciates the contributions of these men.

Continuous Evaluation

Preceptors are asked to evaluate students in the same manner as other members of the faculty. Instead of giving the students a percentage grade or a letter grade, they are evaluated as "superior," "satisfactory" or "unsatisfactory" in each of eleven categories which are grouped under general titles of "fund of information," "performance" and "character." In addition to these characteristics, the preceptors offer brief narrative comments concerning their students.

As part of the continuing evaluation of the program, students are required to submit reports on their preceptorship. In these they make general comments upon their experience, outlining its strongest and weakest features. These evaluations have been of great value in appraising the total program and in leading to advantageous modifications.

Retrospective Evaluation

This program has been very well received by the people of the state, the medical profession, the faculty of the School of Medicine and the students. The medical school curriculum is continually under review in an effort to provide the best possible experiences for our students, and thus it seemed appropriate after the program had been in operation for ten years to undertake a thorough retrospective study of its effectiveness. To accomplish this, a questionnaire was mailed to each of the approximately 1,000 graduates of the ten classes of 1951 to 1960 inclusive. Ten questions required checking only one of several possible answers; one question invited respondents to make comments.

When the results were analyzed, 686 had replied from forty states, Puerto Rico, and six foreign countries. Five respondents did not specify their location. Since the tabulation was made, there have been over a hundred additional responses, which do not vary significantly from those previously analyzed.

Several questions dealt with various details of the conduct of the rural preceptorship. As these would be of little interest to most physicians, this report deals with the more general conclusions that were drawn from the survey. These relate to evaluating the preceptorship in accord with each respondent's particular experience as influenced by the type of medical life he finally entered.

One question asked the respondent to indicate whether, in light of his experience since graduation, his preceptorship had been of "much value," "some value," "doubtful value" or "harmful." Only four respondents expressed no opinion; the others are summarized in Table I in which the "much value" and "some value" replies are combined. These numbered 370 and 254 respectively, giving the indicated total of 624. The second column in this table, headed

TABLE I
VALUE OF THE PRECEPTORSHIP

<i>Type of Practice</i>	<i>Valuable</i>	<i>Doubtful*</i>
Family practice	226	11
Strict specialty	79	11
Teaching-research	12	6
Military	65	4
Intern-resident	206	22
Other	36	4
Totals	624	58

* Includes one response indicating that he considered his experience harmful.

"doubtful," includes those who considered the experience of doubtful value and the one respondent who classified it as "harmful." As can be seen, an overwhelming preponderance of family physicians and a healthy majority of specialists, teachers and investigators considered their preceptorship experience valuable.

A slightly different evaluation is gained by analyzing replies to the question, "Are you glad you had a preceptorship or do you wish that you had spent the time in some other activity at the medical school?" Table II presents these figures. They generally confirm the data in Table I but with some interesting minor differences.

During the ten years the program has been in operation, the only important change is the reduction of time spent in the preceptorship. Conveniently for our present purposes this change was made after the fifth year of the program's operation. We were interested in knowing whether attitudes towards the program changed from class to class, and particularly whether the shorter duration made any great difference to those who participated. It seems quite clear from the data in Table III that the shortening of the preceptorship has not impaired its effectiveness or popularity.

The results shown in Table IV indicate that an overwhelming majority of alumni believe the program should be continued, and about two-thirds favor its being required. The only group dissenting in this latter opinion comprise those involved in teaching and research. This may reflect a growing sentiment among academicians in favor of elective work in medical school or it may be the result of the small number in the sample.

There were surprisingly few destructive comments compared to a fair number that offered helpful and constructive criticism. The bulk of the comments

TABLE II
DESIRABILITY OF THE PRECEPTORSHIP

<i>Type of Practice</i>	<i>Glad They Had It</i>		<i>Not Glad*</i>
Family practice	215		16
Strict specialty	75		14
Teaching-research	10		8
Military	61		7
Intern-resident	188		34
Other	37		4
Totals	586		83

* These replies which indicate that another experience would have been more valuable include the five who said the preceptorship was a waste of time.

TABLE III
EVALUATION OF THE PRECEPTORSHIP
BY EARLIER AND LATER CLASSES

<i>Classes</i>	<i>1951-'55</i>	<i>1956-'60</i>
Glad they had a preceptorship . .	276	310
Wish time had been spent in another activity	41	42
No opinion checked	8	9

were, as might be expected from the tabulations presented above, quite favorable. An added dividend was the receipt of numerous friendly personal notes which materially eased the task of analyzing the questionnaire.

Current Status of the Preceptorship

The rural preceptorship has found a niche in the undergraduate educational program at K.U. because it broadens the medical students' experience and improves their perspective. It permits each student to participate intimately in the professional, civic and social life of a dedicated preceptor who has been given a faculty appointment for this purpose. During the preceptorship, the student is able to observe his preceptor's medical life, his place in society, his social and civic responsibilities. While assisting in the care of patients, the student copes with problems somewhat different from those encountered in large teaching hospitals. The patients constitute a representative cross section of the population. They range from the highest to the lowest economic brackets and they are virtually unselected as far as medical conditions are concerned. In addition, the preceptor's patients are in their home environment.

It has been commonly assumed that the goal is to obtain physicians for rural areas and to guide students into family practice. Although the program may have accomplished both of these to some small extent, it is more accurate to say that it gives each student an opportunity to observe family practice—particularly rural family practice—and to decide on the basis of first hand experience whether this type of life is appealing.

The preceptorship may have guided some physicians toward rural family practice, but it has doubtless discouraged others who had an idea of entering this sort of life. Far from being designed solely for the individual who expects to enter family practice, it is probably of least value to that person and of greatest value to those who enter specialty practice, teaching or research. For the physician going directly into a specialty, it will likely be his sole opportunity to become familiar with the family physician's prob-

TABLE IV
OPINIONS REGARDING FUTURE OF
THE RURAL PRECEPTORSHIP

<i>Type of Practice</i>	<i>Should Be Required</i>	<i>Should Be Elective</i>	<i>Should Be Dis- continued</i>
Family	169	66	2
Specialty	60	30	2
Teaching-research	3	12	2
Industrial	2	0	0
Military	50	19	0
Government	10	4	0
Intern-resident ...	133	87	8
Other	14	12	0
Totals	441	230	14

lems; for the teacher and investigator, it may well be their only direct contact with the private practice of medicine. The advantages to these individuals are evident.

A Look to the Future

If the preceptorship is to justify itself as a part of the medical school curriculum, it must continue to develop and maximally exploit its unique potentialities. The medical profession has an increasing concern with the problems of community health and preventive medicine, and these concerns may well become an integral part of the preceptorship program. Dr. Annis Gillie,⁸ in the College of General Practitioners' Eighth James Mackenzie Lecture, quoted Sir James: "To achieve the aim of medicine it is necessary to recognize disease and understand all the phases of its life history. It is evident that only one class of individual has the opportunity for acquiring this knowledge, and he is the general practitioner." She gave illustrations of Mackenzie's accomplishments as an investigator while actively engaged in the general practice of medicine, and emphasized that he recognized that an awareness of general practice was important to every medical student regardless of what section of medicine he planned to work in.

Looking into the future, some see the family physician as the ideal person to determine who among his patients is most vulnerable and to give medical care to them even before they become ill.⁹ His ability to do this depends so much upon his understanding of epidemiology and environment that it seems obvious that the family physician will be in a unique position to render this type of service. If undergraduate medical education is to assume more of this orientation

(Continued on page 88)

The Hospital Emergency Service

DON R. MILLER, M.D.

ACCIDENTAL INJURY has become one of the leading causes of death in this country. Accidents were the chief cause of death among ages 1-34, and ranked 4th as the cause of death among all ages in 1953.¹⁰ It should be of particular interest to the doctors of Kansas that more accidental deaths occurred in farming than any other industry in 1953.

Because of inadequate facilities available for care in many instances, the hospital emergency room has been referred to as the "weakest link in the chain of hospital care" in most hospitals in this country.⁴ There has been considerable effort on the part of various organizations, including the American College of Surgeons and its Trauma Committee, the American Association for Surgery of Trauma, and the American Board of Surgery, to stimulate interest in the field of trauma and to improve the level of care rendered in hospital emergency departments.

Recommendations, largely based upon surveys of existing emergency facilities have been made with respect to: (1) improvement in the care rendered; (2) availability of equipment and facilities; (3) sufficient well trained personnel; and (4) improved administrative management of emergency services.

Since World War II, there has been considerable change in use of hospital emergency departments through this country. Within the past 15 years, many hospitals have noted a significant increase in the number of patients treated annually, some as high as 800 per cent.^{6,7} This increased demand upon emergency facilities cannot be explained upon population changes alone.⁴ A survey⁶ was conducted in both large and small metropolitan hospitals in an attempt to explain this trend and the following reasons were suggested: (1) inability of patients to reach practicing physicians on weekends, nights and holidays; (2) an increase in accidents, mainly automotive; (3) that physicians use the emergency room to accomplish procedures previously performed in the office; (4) insurance payment for emergency room care and not office care; (5) increased population growth; and (6) an attempt to economize by bypassing the physician. Howell² and Stewart⁹ have indicated that the public has come to expect the physician to make use of diagnostic and therapeutic facilities more often found available at the hospital than in his own office. Spencer suggested that concerted effort to re-educate patients in the value of having a family physician could result in lessening the load on emergency

rooms, but that no effort will reduce the number of situations where the emergency ward is really needed. On the basis of these reports, regardless of the cause, it is apparent that the use of emergency facilities is increasing and may be expected to continue to do so.

The Emergency Service Functions

The functions of the emergency facility will vary considerably depending upon the size and type of the community which it serves and the occupations of its residents. Other factors which may be influential in the management of the emergency service include the recreational facilities in the area and the proximity to main highways and their attendant accidents.¹

At the University of Kansas Medical Center, the singular function of the emergency service is to provide the best possible care for patients who present with true emergencies, whether surgical or medical. Every attempt is made to limit treatment only to those patients who present with emergent conditions, because of limited facilities and staff whose efficiency as an emergency team would be compromised by the additional demands of routine care. Upon initial screening, inquiry is made concerning his family physician, who is consulted relative to the problem at hand, and the patient appropriately treated or returned to the family physician for care. If treated, the patient is returned to his family physician as early as possible. *We believe it important that no patient presenting for care or examination be dismissed without having been seen by a physician.* In some instances, an obviously nonemergent condition exists, since the patient's idea of an emergency may not coincide with that of the physician, however, the moral, medico-legal and public relations implications in denying any patient proper examination are obvious. In order to eliminate tragic errors, a *physician* must see the patient and make the decision as to the proper disposition after his examination. For these reasons some patients presenting conditions other than true emergencies necessarily are seen in the emergency area.

Of next importance is the teaching function provided by the emergency service. Senior medical students, and house staff have regular assignments in the area. The assignment to this area has been a rewarding and desirable experience for the student, who sees first hand, patients with common, acute

problems with which he may be faced in practice. The opportunity provided for the study and management of traumatic, medical, pediatric, surgical, and obstetrical emergencies by the house staff is an invaluable part of the training programs for each of these specialty areas.

A poison control center is located in our emergency service area. Accidental poisonings, one-third of which occur in children under five years of age, still account for some 1,500 deaths each year in the United States. This facility should be a component of any large emergency ward. It serves the function of treatment of patients, as well as providing pertinent poison information to physicians in the area. It is another valuable adjunct to the teaching experiences of students and house staff.

The emergency area has been selected as the sorting point for casualties in the medical center disaster plan. We feel strongly that disaster procedure should, as nearly as possible, augment existing routine hospital procedures rather than incorporate new job and physical plant assignments. Since the emergency personnel are experienced in receiving emergency victims, the choice of this area as the triage point in the large scale disaster seems obvious. Except in the case of airway difficulty, or acute bleeding, definitive treatment would be performed in areas dispersed from the triage point however.

While it may be practical for some emergency wards to permit elective minor operative procedures, routine examinations, and routine laboratory studies in the emergency suite, these functions in general cannot be permitted in a large emergency facility due to the limitations of the numbers of personnel, space and equipment and the need of their ready availability for the true emergency.

The solutions to most emergency service problems lie in providing adequate personnel, facilities, and administrative responsibility.

Personnel

It is important that the emergency service be staffed 24 hours a day by personnel who are interested and trained in the management of emergency problems, and in sufficient numbers to meet the normal patient load. The receptionist or nurse who initially sees patients or relatives must be skillful in her approach to these people, who often are excited, worried, and distraught. The community often forms its opinions of the hospital, good or bad, by what it sees in the emergency area.

It is essential to have adequate and well trained nursing and assisting personnel to provide quick, efficient care for the patient. Explanations of reasons for unusual delays are welcomed by agitated families. An intern serves as the initial screening officer in the

emergency area at the medical center. He is assisted by two senior medical students. The intern calls freely upon the resident staff, who are responsible to the attending staff, for consultation with regard to patient management and disposition. He is under the direct supervision of residents and the attending staff, as well as the emergency service staff physician. Residents and attending staff of each specialty are available for prompt consultation 24 hours daily.

In hospitals where house staff are not available, the problem of emergency staffing has been solved by rotation assignment of the attending staff for emergency service coverage or by the employment of a physician to provide this service. The physicians of the community or medical society should share the hospital's responsibility in meeting the need of emergency coverage.

The Administration

The survey of 194 hospitals by Stewart and others showed administration of the emergency service area was often lax and uncertain. Because of the many requirements of the emergency service and problems arising in the area, it is important that written rules of procedure be specified and kept up to date.⁵ These suggestions and regulations have been incorporated in a manual which is required reading for all personnel who work in this area at the medical center. In this manual are such things as directives which outline routine procedure, fix service responsibility for care in certain types of emergency, outline patient disposition, and suggest standardization of management of some problems which are common to this area. A specific example is the prophylaxis of tetanus. Patients who have been potentially exposed to tetanus, and who have not had active immunization against it, are given the first dose of toxoid in the emergency area in addition to any passive immunization which may be required. The patient is then given a note urging him to complete the active immunization at his private physician's office. This manual has been very useful in the orientation of personnel who change services frequently within the medical center.

Ideally, one physician, who is interested in trauma, should be given administrative responsibility for emergency ward procedure.⁹ Because of the many hospital and medical departments involved in emergency care, he will need to work closely with hospital administration, out-patient department, nursing department, business office, as well as the various medical specialty areas. Some hospitals have organized committees for the management and organization of their emergency facilities.

Accurate records of emergency care cannot be over emphasized. Information from these records is used for the completion of insurance forms, medico-legal

requests, business office records, as well as for the purposes of medical record. Our special form for emergency cases is designed to minimize clerical work by incorporating doctors' orders, nurses' notes as well as hospital charges on the medical record. Upon the upper portion of the record, information relative to the patient's identification and details of the accident are given. The remainder of the record is simple ruled paper for recording accurately the pertinent points of the history, physical examination and disposition of the patient. This record is incorporated in the hospital chart.

In addition to individual patient records, a log of all patients is kept. This serves the useful purpose in overall emergency planning by providing information relative to the number of patients seen and their diagnoses.

The Facilities

The term "emergency room," in most instances, is no longer an appropriate title for the facilities which are required for adequate emergency care in a busy metropolitan hospital today.³

The old, single emergency room at the University of Kansas Medical Center in less than fifteen years has been replaced by a suite of five rooms which will soon require expansion. The increase in the patient load which has been reported in other hospitals has also been experienced here. The number of emergencies treated annually has doubled in the past 10 years. In 1961, approximately 1,500 patients were seen, monthly. Seasonal variations are noted in that more patients are seen during the summer months than during the remainder of the year. Approximately

one-fourth of the patients were seen as a result of trauma (*Table I*). One-fourth of the patients have been in the pediatric age group. Other specialties involved in the care of emergency patients are noted in the table. About fifty automobile accident victims are seen each month.

The emergency department entrance should be well marked, so as to be easily visible and accessible from the street by emergency vehicles.

The suite should have sufficient examining rooms for the prompt care of patients. Minor operating facilities should be available. The same degree of sterile technique, practiced in the major operating suite should prevail in the emergency area. All personnel in the room with patients having open wounds must be capped and masked. Equipment and instruments should be complete and operational. The area should be equipped for the application of plaster.

The large number of emergency patients who require diagnostic x-ray films demand that the emergency area be in close proximity to x-ray facilities for efficient management of patients. Lack of x-ray facilities in the emergency areas has been mentioned as an important factor in the "weakness link" previously noted.⁷

The modern emergency ward should have equipment immediately available for establishing and suctioning the airway and for administration of oxygen. A thoracotomy tray, lavage tray, electrocardiograph machine, bag ventilator, internal and external cardiac defibrillator, tracheostomy set, intravenous fluids and plasma expanders and emergency drugs are other requirements. Placing resuscitative equipment on a mobile cart makes it immediately available to other hospital areas, and prevents costly duplication of this equipment in those areas when the need for its use is infrequent. Laboratory and blood banking facilities should be immediately available.

One or two beds in the emergency area for patients who require observation for a few hours is a valuable part of the emergency suite in a large hospital.

Summary

Accidental injury plays a major role in the mortality rate in this country. Increased demands upon emergency facilities in recent years have required changes in services, space, personnel, equipment and administration in order to provide adequate emergency care.

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TABLE I
SPECIALTY DISTRIBUTION OF EMERGENCY
SERVICE ADMISSIONS*
1961

	<i>Per Cent</i>
Surgery (including trauma)	37
Pediatrics	24
Medicine	21
Gynecology	6
Ear, Nose, Throat	6
Orthopedics	4
Ophthalmology	2
Urology	2
Psychiatry	1
Neurosurgery	1

* Patients who had conditions which involved more than one specialty area may have been included in more than one of the above categories.

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The Basic Medical Sciences

(Continued from page 80)

desire to support the Medical School by the presentation of a centenary gift appears to be unanimous.

One thing has been clearly understood since the start of the Alumni Drive. The centenary gift, to extend over a five year period, is special. It does not replace giving through A.M.E.F. Present support must continue. Little would be accomplished by contributing the same funds as previously under a new name. We will not be helped by transferring funds from one pocket to another. A special need exists which can be met by special giving over and above established patterns. As always with contributions to the University, the cost of raising and administering funds is borne by the Endowment Association.

This new effort on behalf of the Medical School should not be interpreted as a change of emphasis or a redefinition of goals. The effort is to better serve traditional goals by new resources. The alumni of the Medical School are to be congratulated for this far vision. They will need help from our students, faculty, and friends. They shall receive it, and powerful growth on behalf of better medical education and better health in Kansas shall continue.

The Rural Preceptorship

(Continued from page 84)

the family physician—at K.U. the preceptor—should be actively involved in this phase of teaching.

Conclusions

The preceptorial method of teaching, probably the oldest one in medical education, has again become of interest. Many schools have reintroduced it into their curricula. While these programs differ from one school to another, certain common features have been commented upon.

The aims and methods of the Kansas program have been restated in accordance with the present philosophy of the faculty—a philosophy which has not changed materially in the past ten years.

A retrospective evaluation of the program has been attempted by circulating questionnaires to all graduates of the past ten years, and the results—a sweeping endorsement of the program—are presented.

We anticipate that the preceptorship will continue to function substantially in the same manner, but with added efforts to exploit its unique potentialities for teaching preventive medicine and solving community health problems.

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The Functions of a Poison Control Center

CHARLES E. LEWIS, M.D., and JOHN CHAPMAN, M.D.

DURING THE PAST several years there has been a rather constant increase in the incidence of accidental ingestion of poisonous materials by children in the United States. At the same time the management of a case of this nature has become more complex. This may be attributed to the increased numbers of commercial products available on the market which contain chemicals that may be unfamiliar to physicians. In order to facilitate the treatment of such patients, Poison Control Centers have been developed throughout the United States.

The first Poison Control Center was organized in Chicago in 1953. This was the result of the joint efforts and interest of the American Academy of Pediatrics, Chicago Board of Health, University of Illinois and six major teaching hospitals, as well as the Illinois State Toxicology Laboratory. At present, over 400 Poison Control Centers are registered with the National Clearing House for Poison Control Centers. The latter is operated by the Public Health Serv-

ice of the United States Department of Health, Education and Welfare. The National Clearing House provides information on the contents of commercial products and suggested methods of treatment of cases due to the ingestion of these materials. It also provides the forms and reference material necessary for operating such a center. One copy of the form which is filled out on all poisoning cases seen at a Poison Control Center is sent to the National Clearing House in order to compile epidemiological information on the national scope of the problem (Figure 1).

While various centers differ in their approach in the services which they extend to the community, they all provide information regarding toxic components of ingested materials and suggested methods of therapy. In some instances an actual treatment facility is operated.

In the Fall of 1961, the University of Kansas Medical Center became officially registered as a National Poison Control Center. The Medical Center had

U. S. GOVERNMENT PRINTING OFFICE: 1960-884528

NAME OF PATIENT (Last, First, Middle)		AGE ____ YRS. ____ MOS.	RACE <input type="checkbox"/> W <input type="checkbox"/> N <input type="checkbox"/> O	SEX <input type="checkbox"/> M <input type="checkbox"/> F	NO. B 32392
HOME ADDRESS (Street, City, County, State)		DATE INGESTED		TIME INGESTED ____ AM ____ PM	AMOUNT TAKEN (estimated)
PART A (Complete for all cases)	SIGNS AND SYMPTOMS (Check one or more) <input type="checkbox"/> None <input type="checkbox"/> Coma <input type="checkbox"/> Stupor <input type="checkbox"/> Vomiting - Spontaneous <input type="checkbox"/> Nausea <input type="checkbox"/> Burning sensations <input type="checkbox"/> Diarrhea <input type="checkbox"/> Abdominal pains <input type="checkbox"/> Dyspnea <input type="checkbox"/> Convulsions <input type="checkbox"/> Cyanosis <input type="checkbox"/> Other		TRADE NAME		ACTION INVOLVED <input type="checkbox"/> Accidental Ingestion <input type="checkbox"/> Accidental Overdose <input type="checkbox"/> Mistaken Identity <input type="checkbox"/> Intentional Ingestion <input type="checkbox"/> Other, _____
	TOXIC CONSTITUENT (Arsenic, etc.)		TYPE OF PRODUCT (Stitch, etc.)		
	NAME AND ADDRESS OF MANUFACTURER		TYPE OF CASE <input type="checkbox"/> Telephone Inquiry (If checked complete Part B) <input type="checkbox"/> Treated Case (If checked complete Part C)		
	PART B - TELEPHONE INQUIRY		PART C - TREATED CASE		
PERSON INQUIRING: <input type="checkbox"/> Medical <input type="checkbox"/> Non - Medical		TIME OF CALL ____ AM ____ PM	VOMITING - Spontaneous <input type="checkbox"/> Yes <input type="checkbox"/> No		HOSPITALIZED <input type="checkbox"/> No <input type="checkbox"/> Yes No. of Days _____
INFORMATION REQUESTED <input type="checkbox"/> Toxicity <input type="checkbox"/> Treatment		INFORMATION AVAILABLE IN CENTER <input type="checkbox"/> Yes, Where? <input type="checkbox"/> No	VOMITING - Induced <input type="checkbox"/> Yes <input type="checkbox"/> No		
TO BE TREATED BY:			LAVAGE <input type="checkbox"/> Yes <input type="checkbox"/> No		
ADVICE GIVEN		PERTINENT FINDINGS, TREATMENT GIVEN			
NAME OF REPORTING POISON CONTROL CENTER		FATAL <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Yes, Date of Death _____		SIGNATURE OF REPORTING OFFICIAL	
DATE					

POIS-2005 - 1 POISONING REPORT
REV. 3-60
See Reverse Side For Examples)

SEND PINK COPY TO:
Natl. Clearinghouse for Poison Control Centers, Bu. of State Services
Public Health Service, Dept. of Health, Education, & Welfare,
Washington 25, D.C.

Form Approved
Budget Bureau
No. 68-7629

Figure 1

Nurses Return to Work

BERNICE SZUKALLA, R.N.*

THE UNIVERSITY of Kansas Medical Center has been plagued by a persistent lack of professional nursing personnel for many years. This situation is not unique to the Medical Center, it is the greatest problem to be faced and solved by most hospitals in the United States, be they large or small in size, general or specialized in types of patients, and private or government financed. This problem continues to exist in spite of the fact that there are more professional nurses employed in hospitals at the present time than at any other time in the history of the profession. Even during the so called "good old days," hospitals employed very few registered nurses. Those who were employed were only in administrative positions. All nursing care was given to patients by student nurses.

Why then the problem? It exists today because of a combination of developments in the field of health care.

1. An increase in the population and an increase in the use of hospital insurance plans has forced a corresponding increase in the number, size, and use of hospital facilities. This has necessitated the employment of more nurses to staff the hospitals than ever before.

2. There has been an increase in the use of professional nurses in doctor's offices, health agencies, industry and the school systems. Since these positions usually offer more attractive working hours and/or salaries, they continue to entice nurses away from the hospital.

3. Changes in patterns of medical care have resulted in a more rapid turnover of patients in hospitals. The result has been a need for closer patient supervision, increased patient teaching and rehabilitation. This increased activity has necessitated the employment of more personnel to provide these services, professional as well as non-professional.

4. The use of non-professional or auxiliary workers in giving physical care to patients has required the development of a highly structured nursing service professional organization to provide adequate supervision in order to insure safe patient care.

5. There has been a change in the approach to nursing education from an apprenticeship type of training to the teaching of student nurses by the educational process. With the apprentice type training, students were exploited for service to patients by

learning through repetitious activities. Today hospitals are used as laboratories to provide the students with controlled educational experiences and thus enable them to acquire more professional knowledge on which to base their judgments as professional nurses. This change in educational philosophy has required hospitals to employ a larger number of professional nurses to insure continuity to nursing care.

6. The rapid turnover of professional nursing personnel requires the development of sound orientation and in-service programs. More than 90 per cent of this turnover is due to marriage and subsequent family responsibilities shortly after graduation along with young unmarried nurses seeking new professional and social experiences. Since these characteristics are prevalent in the majority of female occupations, it is a situation which must be accepted as a matter of fact as this trend cannot be reversed by a profession for it is the pattern of our present way of life in the total population.

Most of the action taken by the profession to date has been to improve the working situation. Many needed improvements have been made in salary structures and fringe benefits. These have been necessary and require continuing improvement, to give the professional nurse the status she desires and which she deserves.

The results of these actions has been to attract nurses from one section of the United States to another, from one hospital in the community to another, and to attract more high school graduates into the profession. However, these results have not solved our problem. It appears that the only solution will be to get more and more people in the profession as the demands on the profession for services is increasing at a rate much faster than we are able to increase the supply via increasing enrollments in the schools of nursing. How is the supply then to be increased at a more rapid pace?

After much deliberation and consideration of the problem, the Department of Nursing Service decided that a valuable untapped source of professional nurses did exist. This source is the nurses who left the practice of nursing shortly after graduation to meet their family responsibilities. With children reaching the age where they could adequately and safely meet their own needs and with the changing attitudes of the public toward working mothers and wives, we believed that these non-working nurses could be enticed back into active practice. Our challenge was

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to find a way to allay the fears they developed due to insecurity in their knowledge brought about by the changing concepts in patient care, and the development of new drugs and equipment. It was further agreed that since these nurses were already educated in the basic sciences, a review and practical experience of present techniques and practices would prepare them to safely return to the practice of nursing. Since the problem is one of staffing which primarily concerns the employers of nurses, we decided it was the responsibility of our department to develop a program to prepare these nurses to return to the profession.

As planning for the program progressed we made other decisions: (1) We believe that since we are supported partially by state funds we have a responsibility to meeting the needs of the state of Kansas as well as those of the Medical Center; (2) We believe that nurses who have practiced within the last five years can be returned to the profession by a sound orientation program with continuing on-the-job inservice education; (3) We believe that nurses who have not practiced for at least five years learn more rapidly in groups by sharing questions and answers, as well as discussions and experiences; (4) We believe that it is equally important for inactive nurses who do not plan to return to work, to gain increased knowledge regarding nursing as they would be better prepared to interpret nursing to their families and friends. Therefore, it was agreed to accept these nurses into the program provided the class enrollment was incomplete; (5) We believe that the program needs to move along at a fairly rapid pace to protect the time of the housewife and therefore decided to hold classes 9:00-2:30 each weekday for two weeks; (6) We believe it is important to use various teaching methods to insure an understanding of the changes which have emerged in the various areas of professional nursing.

Following these decisions, the details of the program were developed. In general, the program includes:

1. A review of general nursing principles and procedures;
2. An opportunity to become familiar with new

equipment, new medicines, new methods and practices in the care of patients;

3. An opportunity to give direct care to patients;

4. An opportunity to understand the interdisciplinary concepts of patient care through the functioning of the health team.

For acceptance into the program very simple requirements were established: (1) The applicant must show evidence of current registration in one of the United States; (2) The applicant must make arrangements for a personal interview with the director of the program; and (3) the applicant must attend all sessions of the program.

Two programs were presented during 1961 with a total enrollment of 45 nurses. Of that total, 24 nurses (53 per cent) returned to nursing on completion of the program. Of those who returned to work, 12 (50 per cent) remained at the Medical Center on a full-time or part-time basis. Of the remaining 12, eight nurses returned to positions in other hospitals and four nurses accepted positions with various community health agencies.

At the completion of each program, the participants were asked to submit an evaluation with suggestions for improvements. Many of the suggestions have been instituted to strengthen the program. We plan to continue this project twice a year as long as inactive nurses continue to indicate an interest.

Recently a questionnaire was mailed to each enrollee to determine their interest in an annual one-day continuing refresher. Of the 43 who responded, 41 indicated an interest in participating. It appears that their interest continues to be maintained at a high level.

This entire project has been a stimulating experience for the Department of Nursing Service. The overwhelming enthusiasm and sincere interest of the participants somehow had a positive effect on the attitudes of the entire staff. We have enjoyed having them with us, we have gained in professional nurse service for our patients, and we have gained many personal intangible benefits from participating in this project. We sincerely hope we have made a positive contribution to the profession of nursing in Kansas City and the state of Kansas.

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To Serve the Physician

MARGARET R. G. TREADWELL*

FIVE YEARS AGO, as this is written, the Chairman of the Department of Medicine of the University of Kansas School of Medicine reported to our Kansas State Medical Society on the first eighteen months of a health education experiment.¹ In October, 1956 the School expressed its confidence by naming the Executive Director to the Faculty as an Associate in the Department of Postgraduate Medical Education. At this time the Executive Director offers a five-year report.

The most important aspect of the origins of the American Heart Association to us is the fact that it was not only founded by physicians, but remains today outstanding among voluntary health associations for being actively directed by practicing physicians. Reassessments are being made today of voluntary health agency roles and responsibilities in many quarters, but the paramount purpose of the Association is still, as it was so simply stated in 1923, "TO SERVE THE PHYSICIAN."

This chapter was established by members of the Kansas Medical Society in active practice in nine counties within the immediate referral area of the Medical School, with the interest and support of members of the faculty and the Kansas Heart Association. Quarters for the chapter are provided in the Medical Center and faculty members share in the work of the program as needed, to supplement the instruction provided by members of the nine component county societies in general and specialty practice. Their intent has been to provide physician guidance and direction in the rapidly developing field of instruction in preventive and curative medical care and healthful living practices. In singling out the heart and circulatory diseases for attention the purpose has been to begin with the broadest single category of disease.

The first consideration has been to increase public awareness of the individual's share of responsibility, at the same time that the Kansas Postgraduate program keeps the physician himself in touch with current developments in diagnosis and treatment. In giving active support to this concept of lay education and doctor-patient relationships our Medical

School has again taken the lead, as it did earlier in continuation of medical education. Concurrently physician guidance and direction provides a desirable deterrent to the initiation of programs of insufficient adequacy or return or the prolongation of any program beyond its usefulness.

The chapter was established in the further conviction that it is possible for a voluntary health association to raise sufficient funds to provide a program of instruction of professional calibre, and in which the problems of health and disease are presented in accurate and relevant proportion, without sacrificing another highly important objective of providing "risk capital" for medical teaching and research.

We believe the program here can also promote a better understanding of the importance of basic research without reference to specific disease entities, and increase the "unfractionated" support desired by the medical profession.

The initial report of the Association's first eighteen months activity referred to above listed 67 audiences totalling 4,456 individuals, addressed by 29 physician participants in our Speakers Bureau (21 were practicing physicians in their respective communities, and eight were from the Medical Center). These audiences included parochial and public schools, men's clubs, women's clubs, HDU's, PTA's, PTO's, medical societies and nurses. In the last five years 405 audiences totalling 27,661, have been addressed by 96 physicians of whom 16 were from the Medical Center (see below). A particular effort has been made not to overburden our doctor speakers, and it would appear from the modest percentage of supplemental speakers from the Medical Center that we have succeeded. This is most gratifying.

<i>Group</i>	<i>Meetings</i>	<i>Attendance</i>
Doctors	21	4,839
Nurses	55	3,034
Teachers (Annual Institutes)	38	6,992
Women, HDU	120	3,129
Women, Other	108	6,911
Men	63	2,756

(The disparity in figures between men's and women's groups in the table above reflects early opportunities for block bookings of women's groups. Similar bookings are now being made for men's groups.)

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¹ Kaw Valley Heart Association, Reporting on a Health Education Experiment, JOURNAL OF THE KANSAS MEDICAL SOCIETY, 12:56.

Distribution of given services varies widely among the counties as might be expected. Social services for doctors' patients, health or welfare clients are more frequent in counties lacking a full-time health department, and those without school or other public health nurses. Adult education on the other hand is somewhat larger in proportion to population than in Wyandotte and Northeast Johnson Counties. The school curriculum enrichment program in rural areas is comparable to that of Northeast Johnson County schools where the use of our material is greatest. (Further figures should be compiled before preparing a statistical record.)

Each of the nine counties included in the chapter is visited regularly by the executive director on weekly circuits north and south. Additional communication is maintained in day-to-day cooperative relationships with local social planning and health councils.

Financially, our course seems to have justified our hopes. Through the untiring efforts of our officers and board, our resources have grown substantially despite the heavy emphasis placed upon program, fostered by public expectations of a health education office in a University Medical Center setting. From a first year's receipts of \$8,165.70 (including \$3,000 loaned by AHA and since repaid) support has increased to the 1961 total of \$59,224.43. By strict economy this has been made to cover professional publications and other services to physicians, the instructional program, and related information, referral and counselling services.

In a particularly happy consonance of desires and priorities of the Medical School and the American Heart Association we have also established a "SCIENCE TALENT SEARCH PROGRAM" to promote recruitment for the medical sciences. At the instigation of Dr. Tom R. Hamilton and under his admirable guidance we began in 1958 with three high school students a project to give boys and girls of exceptional promise the opportunity to work in the Medical School laboratories with interested individual faculty members. The number increased to 20 the second year, and is at present limited to a maximum of 18. These students come to the Medical Center for ten weeks of full time work in the summer. Last summer six were parochial or public high school students, and 12 were college students. Scholarships were awarded totalling \$4,560, individual stipends varying with academic levels.

This project is a story in itself including a long list of college scholarships and other honors won by participants. At present seven students plan to enter medical school or commence work for a master's degree in microbiology in 1962 and 1963. Interest and further support have come from the Kansas Heart Association in the form of grants for the

past two years, for five students from Topeka and western Kansas. Additional support has been received from the American Health Association in grants for 1960 (\$1,500) and 1961 (\$1,000) designed to support the program on a decreasing scale as local support develops. A grant of \$850 from the Kansas City Association of Trusts and Foundations in 1960 was increased to \$2,400 in 1961, and renewed for 1962.

Our commitment to medical teaching and research, as is familiar to many members of the Kansas Medical Society is fulfilled by the 25 per cent of our funds contributed to the American Heart Association program, and 25 per cent to the Kansas Heart Association program. The research grants to the medical sciences at Kansas University and the University of Kansas Medical Center through the Kansas Heart Association support work of major importance. Grants from the American Heart Association provide for an "Established Investigator" in biochemistry and related projects, at our Medical Center.

Dr. Robert H. Hamlin comments in the recent Rockefeller report on voluntary health agencies.*

"Unfortunately such major voluntary agency programs as public education, research, and community organization cannot be measured statistically."

We can, however, evaluate them in some degree. Grants made to the University and the School of Medicine have been subjected to a searching and thoughtful evaluation on a national basis by highly qualified physicians and scientists. Education and community organization should be examined in relation to the effort made and the proportionate results, adequacy in meeting known needs, and general economy and efficiency. Together these give us a basis for long-range planning, including identification and planning for unmet needs and the establishment of sound priorities.

Considerable effort has gone into the program of the Chapter. Currently upwards of 20,000 individuals a year are being served in our nine counties, information and referral services are provided, programs are presented and a film service is maintained. Programs include nutritional instruction for low salt and low fat diets; work simplification for the handicapped homemaker; adult education; enrichment of school curriculum; instruction in community resources for nursing students in community hospitals; support of postgraduate programs in the new techniques of cardiovascular nursing related to the development of open heart surgery; and counselling. Many volunteers have also expended vigorous efforts in set-

* *Voluntary Health & Welfare Agencies in the United States*, Study Director Robert H. Hamlin, M.D., M.P.H., LL.B., New York, 1961.

ting up and carrying on the Heart Fund which supports the program.

Adult education programs present a particular challenge. They are attentive and intelligent audiences, and yet the general lack of knowledge of the elements of structure and function of their body machinery—at least in the cardiovascular field—is general and unmistakable. They are eager for further health programs by physicians in several fields. Human development is one, child health is another, and aging is a third.

We recently presented a PTA panel program on child health. The participants: a surgeon on accidents, a general practitioner on infections, a pediatric cardiologist on congenital heart defects and rheumatic heart disease, and the admitting officer of our Children's Rehabilitation Unit on emotional and physical handicaps. Presentations by the physicians will continue to be followed by a full discussion and question period with the audience.

Identification of results of a primarily preventive program can only be limited. We know from the calls we receive from physicians that there has been a marked rise in interest in prophylaxis programs to control rheumatic fever recurrences. It seems not unreasonable to attribute this in part to the provision, as directed by our Medical Advisory Committee, of professional materials and lectures on this subject to doctors. This was followed by the provision of information regarding rheumatic fever control to parent-teacher groups with wide response. The excellent programs on prevention of disability from stroke of the United States Public Health Service and our Kansas State Board of Health, as well as our own activity, have brought many calls for information and assistance. Response to these in the form of counselling and referral services has been supplemented with visual and printed materials. Early in the summer teaching visits will be made by a highly qualified physiotherapist where requested by the Medical Staff to our community hospitals in a rehabilitation program requested and planned by the Medical Advisory Committee and our Board Standing Committee on Nursing Education.*

Recent advances in open heart surgery, with the accompanying increase of operable cases have also brought us new calls from physicians for parent education. These are being met by professional talks, films, and a well conceived and physician-written booklet put out by the American Heart Association. Doctors are expressing interest in the development of work evaluation procedures for the guidance of

the cardiac worker. Doctors are also making increasing use of our referral services, as they find that the office can correlate and supplement scattered social and medical resources without duplication of existing community services, or impinging upon doctor-patient relationships.

How adequate is the program in meeting present known needs? Our talks, lectures and other educational programs designed to meet basic, known needs for education and information of the patient are of excellent professional quality, thanks largely to an immense amount of work by our Medical Advisory and Speakers Bureau Committees in both preparation and delivery. The subject matter covered is in their hands, where it should be.

Sustained effort, thoughtful and flexible response to expressed needs must mark our continuing course. We are meeting the calls upon us for service moderately well. Improved secretarial staff is satisfactorily eliminating delays. Delayed justice is no justice at all, and the same is apt to be true of calls for information, and for the various social services embraced in the term "referrals."

Increasing support of the program by community leaders, and the assumption of planning and collections for the Heart Fund are now releasing needed time for the director to apply to teaching, and to cooperative planning with other agencies. This cooperation is undertaken as an important community leadership responsibility toward the coordination of scattered health resources desired by the medical profession.

Is the program efficient? Staff organization centering on a health educator in a University Medical Center setting, with qualified secretarial staff, provides a higher standard of service than can be had in scattered county operations, coupled with significant operating economies.

Conclusions

Physician speakers before community groups are still uncommon. Their audiences are impressed, and appreciative of the professional quality of the instruction presented. An acquaintance of this kind with a competent physician provides primarily a needed basis for judging and selecting medical and health care services. It is inescapable that many adults and a large proportion of our high school students entirely lack such an experience. Only a physician can best educate them in the character of sound medical care. The school nurse, physical education teacher and other health educators can subsequently contribute to and extend this instruction.

The conflict of school hours with hospital rounds,

(Continued on page 110)

* This committee is composed of 23 nursing leaders in the fields of public health, school, hospital and private duty nursing.

Dietetics—Its Heritage and Future

HAZEL PARRY, M.S.,* and ELIZABETH McCUNE, M.S.**

DIETETICS AS A PROFESSION is recognized and respected because the dietitian offers science as a service; that is, nutrition translated in a practical, individual way for the patients and personnel of an institution. These thoughts were expressed by Miss Adelia Beeuwkees, President of the American Dietetic Association, in November, 1961.¹

The heritage of dietetics goes back through the maze of antiquity. In the *History of the American Dietetic Association* are found these excerpts of historical background. "Throughout the ages diet has been a tempting subject, open to endless fancy and to sensational and sometimes sage observations. The Ebers papyrus, written perhaps 1,000 years before Hippocrates, contained what possibly may be the first recorded diet prescription. . . .

"A prototype of the dietitian flourished under another name hundreds of years before the birth of Christ, when Pythagoras, sometimes reputed to be the wisest of all Greeks, advocated the exact measurement of victuals and drinks. . . .

"The Apicius, the world's oldest cook book, dating back to imperial Rome, is filled with dietetic principles which are still sound today. Apicius' technics retained the mineral salts in his vegetables; he removed the peeling of the vegetables, using a method that foreshadowed the modern power vegetable peeler. He had a strange intuition for the conserving of the more essential elements in foods, an intuition that functioned in the absence of scientific facts. . . .

"A Chinese medical book written during the T'ang Dynasty of the Seventh Century contains an account of night blindness and its dietary cure.

". . . Innumerable and often lengthy dissertations on food and diet have appeared in all the medical literature known to students of archaic sciences. . . .

"There were no experimental nutritionists in antiquity. While Hippocrates made much of treating disease by diet, and though many of his speculations happened to be sound, 2,200 years were to elapse before scientific nutrition, as known today, began to take the place of empiricism. In 1794 Lavoisier opened the modern era of the science of nutrition with his determination of the end result of digestive activities. . . .

"Restraint, too, marked the menus in the hospitals of that time and the late 18th Century. Mush and

molasses were served for breakfast on Mondays, Wednesdays and Fridays, varied by mush and molasses for supper on Mondays, Wednesdays, Thursdays and Saturdays. . . . According to the visiting committee of the old New York Hospital, 'the patients were generally well satisfied with their meals,' which 'combined a proper regard for frugality in administering hospital funds with a due respect for the comfort of the patient.' . . . Not until the war of 1812 were 'the fruits of the season' added to the New York Hospital menu and then merely 'by way of relish.' . . .

". . . In the 1870's Monsieur Pierre Blot, armed with his Handbook of Practical Cookery for Ladies and Professional Cooks, arrived to present the cooking school to America. Introduced as a professor of gastronomy, he was undoubtedly one of France's greatest gifts to the American housewife and may have been responsible, at least indirectly, for awakening the need for other professors of gastronomy in American colleges.

"In the wake of Professor Blot there arose several culinary temples devoted almost exclusively to the high artistry of food preparation and presided over by such priestesses from Boston as . . . Fannie Farmer, the 'mother of level measurements,' and, notably, from Philadelphia, Sarah Tyson Rorer.

"That these cooking schools of the 1870's, the 1880's and the 1890's laid the groundwork for the dietetic profession in America seems to be indisputable; that Mrs. Rorer, who was a 'true scientist and made her craft a fine art,' qualifies best as the predecessor of the modern dietitian, in fact *was* the first American dietitian, also seems indisputable. . . . Mrs. Rorer achieved the happy distinction of editing a department 'to illustrate the practical application of dietetics' in the *Dietetic Gazette*, published under the auspices of the American Medical Association in the 1880's and the 1890's. Interestingly enough, during this period the American Medical Association formed a Committee on Dietetics, influenced, possibly, by Mrs. Rorer's firm statements in the *Gazette*, such as: 'If I could make the cooks of the nation, I would care but little who made its apothecaries'; 'A man may eat until he can eat no more and still be ill fed' and, 'It would be unwise to lay down a general diet for all men.'

"The dietetic profession, as known today, is a development of the fast-moving 20th Century. The art of dietetics was to join hands with the science of

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nutrition . . . a new profession was heralded—that of the dietitian skilled in the arts and learned in the sciences pertaining to the selection, the preparation and the use of food. . . .

"The dietitian's sphere of influence prior to World War I was limited largely to the 'diet kitchen,' the 'feeding of the sick' and 'the instruction of nurses in this feeding of the sick.' Medical practitioners were only beginning to take due cognizance of Osler's aphorism, 'Treat the patient rather than the disease,' a concept which, together with the modern accent on scientific nutrition, has broadened into today's public health goal of preventing the disease."

In 1917, the pioneers practicing 20th Century dietetics, felt a need for spending some time together to devise a plan for dietetic communication. In this way, they hoped to better serve hospitals and war needs both at home and overseas. This meeting in Cleveland, Ohio, October 18 to 20, 1917, resulted in the formation of the American Dietetic Association. From a charter membership of thirty-nine, the organization has grown to a membership today of more than 15,000.

A recent comment by Dr. F. R. Bradley, Director, Barnes Hospital, describes aptly the challenge these members have faced and are facing to enable their profession, which is still in the trying stages of adolescence, to mature to undisputed professional stature. "Dietetics, like all professions, must provide from within its own membership the spark and driving force that sets standards and provides leadership, so that professional service is forthcoming. If the dietary profession does not provide this leadership but depends on others outside the ranks of dietitians, it is no longer a profession but merely a group of skilled technicians."³

At the first Dietetic Conference in 1917, an attempt was made to define a "dietitian" and to determine what was "proper training." At that time no standardized courses existed although three month summer courses were given for students from Pratt Institute in Brooklyn, Drexel Institute in Philadelphia, and Teachers College in New York City. Through the years, the American Dietetic Association has continued to review and revise the concept of the role of the dietitian and the qualifications she must possess or acquire. Today, "a dietitian is a member of the profession of dietetics, which deals with the science, the technical aspects and the art of feeding people.

"The educational requirement prescribed by the American Dietetic Association is the completion of a college course leading to a bachelor's degree, with special emphasis on the social, the physical and the biologic sciences and the application of these to the study of dietetics and food administration, followed

by a year of dietetic internship approved by the American Dietetic Association or a comparable supervised experience. This core of educational and professional training forms the basis for graduate study leading to advanced degrees or specialization in the various fields of dietetics."⁴

Today there are sixty-four hospitals in the United States conducting dietetic internships. Four of these offer graduate study leading to a master's degree. The University of Kansas Medical Center is one of these four.

As the profession of dietetics has grown beyond the uncertain stage of childhood, the need for graduate study and specialization has become apparent. As in the related disciplines such as medicine, nursing and science, the vast accumulation of knowledge and increasing breadth of influence makes necessary the development of specialties in the field of dietetics. This does not discount the need for the dietitian who is a general practitioner and whose duties cross many lines of the specialties. However, in large institutions the dietitian, as well as the medical practitioner, must specialize to be able to assume the place this profession deserves on the health team.

The Department of Dietetics and Nutrition at the University of Kansas Medical Center accepted its first class of dietetic interns in 1941. The experiences offered were those recommended by the American Dietetic Association and were designed to provide the students with a background of experiences in the many phases of dietetics. These students, when their course was completed, were equipped to be general practitioners in dietetics. When the need for specialization became evident, the Department of Dietetics and Nutrition recognized that the University of Kansas Medical Center was in a unique position to offer students an opportunity to specialize in certain fields of dietetics and to do this on a graduate study level.

In 1959, the entire staff participated in developing a program leading to a Master of Science degree. Two major areas of study are offered: (1) Dietetics and Nutrition, and (2) Hospital Dietary Administration. The student who has not had an approved dietetic internship is required to take this experience concurrently with graduate study. The minimum time for completing the two is eighteen months. The student who has satisfactorily completed an approved internship may complete requirements of the specialized Master of Science degree in a minimum of twelve months. Minimum academic requirements are rigid, including courses in Human Relations, Statistics, Advanced Educational Psychology, Food Technology, Social Aspects of Medicine and Thesis for both majors; Seminar in Nutrition, Somatopsychology, Principles and Techniques of Guidance, Medical

Science for Dietetic Students, and Evaluation of Nutritional Status for Dietetics and Nutrition majors; Environmental Sanitation, Organization and Management, Physical Plant, Special Problems in Management, and Labor Economics for Hospital Dietary Administration majors. Additional course work and planned practical experiences in the student's chosen area of specialization, as well as in the areas of education and research, provides the flexibility needed to meet individual student needs.

Establishment of this program resulted from the cooperation of numerous academic and administrative officials, and professors on both the Lawrence and Kansas City campuses of the University. The program is administered by the Graduate School of the University. The students are enrolled in academic work on both the Lawrence campus and the Medical Center campus. The practical work and thesis development is supervised by the staff of the Department of Dietetics and Nutrition all of whom hold academic rank on the Medical School Faculty.

The first class of four students entered this program in August, 1960. Since that time, twenty students have been enrolled in some phase of training. The objective of the program is to qualify graduates for leadership positions in teaching centers. In this way, the staff members of the Department of Dietetics and Nutrition at the University of Kansas Medical Center hope to help provide the leadership called for by Dr. Bradley and in so doing help the profession of dietetics mature through the adolescent stage to a stable adulthood.

In 1887, *The Journal of the American Medical Association* editorialized:

"Is sufficient attention now being given to it (dietetics) by the American medical student? Or is the average practitioner as well posted as he should be on these topics? We should give the physician as much knowledge upon the preparation of food for the sick as the trained nurse. Which American college will be the first to have a Professor of Gastronomy, or, if preferred of Dietetics?"⁵ Ironically, in 1961, Dr. Frederick Stare writes, again in the *Journal of the American Medical Association*, "Nutritional concepts have changed appreciably since the time many physicians went to medical school. Nutrition has seldom been an important part of the medical curriculum and unfortunately this is still true today in most of our medical schools."⁶ Dr. Stare goes on to say that one source of aid with this problem is the dietitian. It is expected that the dietitians trained in the current program at the University of Kansas Medical Center will accept their share of this challenge of 1887 and 1961. Hopefully, history will not repeat this plea in another seventy-five years.

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Poison Control Centers

(Continued from page 90)

type of container, how the accident happened, including who was supervising the child (if the accident involved a child) at the time the accident happened, is obtained. Such a visitation serves to collect important data regarding the epidemiology of accidental poisoning, and an opportunity to make a person-to-person attempt at education of the family.

Numerous approaches are being made to the prevention of accidental poisoning in childhood. These include the design of more "childproof" containers. The Hazardous Substance Labeling Act of 1961, requires that all toxic materials be clearly identified on the labels of commercially available products. A campaign of health education is of primary importance in making the public aware of the responsibilities of parents in preventing accidental poisoning in their homes. The fact that the operation of a Poison Control Center at the University of Kansas involves the Medical Students and House Staff and the Student Nurses who make some of the follow-up visits to patients' homes, indicates that a program of professional education is an inevitable by-product of the proper operation of a Poison Control Center.

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Multiple Malignancies

Carcinoma of the Colon and Multicentric Lymphosarcoma With Recovery

THOMAS J. RANKIN, M.D.*

MULTIPLE PRIMARY MALIGNANT TUMORS have been estimated to occur in 2 to 4 per cent of all malignant cases.⁴ Carcinoma and sarcoma of different systems is more unusual and ordinarily is noted as an autopsy finding. Recovery can be assumed to be rare.

The case described in this report is that of 11 year follow-up of last appearance of multicentric lymphosarcoma and five year follow-up of resected adenocarcinoma of the colon.

Case Report

A 20-year-old farmer was admitted to the Wichita Veterans Administration Hospital May 27, 1948, with the chief complaints of swelling of the abdomen and dyspnoea on exertion.

He stated that he had had a chronic cough through the previous winter. Five weeks before he noted swelling of the abdomen. His cough increased in severity, produced three to four tablespoons daily of whitish sputum and was more troublesome at night. He first noticed mild dyspnoea on exertion. He received antibiotics for "bronchopneumonia" with no improvement. His symptoms progressed. Two weeks later he was admitted to a local hospital. The liver was one inch below the right costal margin; the heart was moderately enlarged. Digitalis and mercurial diuretic therapy resulted in an increase in urinary output. He then was transferred to Wichita Veterans Administration Hospital.

The patient's past and family histories and system review were non-contributory. His parents and six siblings were living and well.

He presented as a well nourished young man of sallow complexion, appearing both acutely and chronically ill. He had a frequent dry, hard cough. There was no superficial lymphadenopathy. Respiratory excursions were shallow and equal. Temperature was 100.4° F., respiratory rate 22 per minute, blood pressure was 128/70 in the right arm—132/82 in the left. The pulse was paradoxical and regular at a rate

A case of five repetitive multicentric lymphosarcomas is reported with onset in a young man of 20 years of age. There was later an adenocarcinoma of the colon.

Eleven years have passed since last appearance of lymphosarcoma and five years since resection of the adenocarcinoma. The patient is in good health and free of known cancer.

of 96 per minute. There was slight distention of the veins of the neck on respiratory effort.

Examination of the chest showed slight impairment of resonance, fremitus and breath sounds at the right lung base posteriorly. The point of maximum cardiac impulse was diffuse. Cardiac dullness was widened to 11 cm. left of the midsternal line. Heart tones varied noticeably in quality and intensity and were otherwise clear. The pulmonic second sound was greater than the aortic. There were no friction rubs. Venous pressure was 110 mm. of water.

The abdomen was rounded and tense, particularly in the upper half. The liver was enlarged to the umbilicus and was moderately tender. The spleen was not palpable. There was dullness in both flanks. There were a few distended veins in the lateral and lower abdominal margins. There was no pedal oedema. The physical examination was otherwise negative.

Laboratory Findings

Initial hemogram showed a hemoglobin of 15.0 gms., red cell count of 5,200,000, white cell count of 8,500 with differential of 81 per cent polymorphonuclear cells and 19 per cent lymphocytes. No abnormal cells were seen. The sedimentation rate was 29 mm. per hour (Wintrobe). Urinalysis showed a trace of albumin, specific gravity 1.028. A Kahn test was negative. Cephalin flocculation test was 2 plus at 48 hours. Total serum bilirubin was 2.35 mg. per cent. Bromsulfalein retention was 19 per cent at 45 minutes. A single blood culture showed no growth. Concentrated sputum smears were negative for acid fast bacillus, block and section showed no abnormal

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cells on microscopic examination. A patch test for tuberculin sensitivity was negative.

P. A. (*Figure 1a*) and lateral x-ray examination of the chest showed diffuse enlargement of the cardiac and mediastinal shadow with some appearance of lobulation of the upper mediastinal shadow. There was an infiltrative shadow extending from the lung hilum to the right middle lobe. There was some density in the right posterior gutter and slight elevation of the dome of the right diaphragm. Fluoroscopy showed very little pulsation of cardiac borders. An electrocardiogram showed iso-electric T waves in standard lead I and lateral chest leads, diphasic T waves in standard leads II and III. Exploration of the left supraclavicular fossa recovered no lymphatic tissue. Pericardial tap recovered 50 cc. of thick, dark, sanguinous fluid. Block and section on microscopic examination showed red cells and degenerated cells from which no conclusion could be drawn. Culture of the fluid showed no growth.

Hospital Course

The patient ran an irregular temperature spiking to 103° F. Digitalis was discontinued. Four and two tenths gms. of acetyl salicylic acid were given daily in divided doses. Codeine and barbiturate sedation

were given as needed. On the sixth hospital day acetyl salicylic acid was discontinued; administration of 300,000 units of crystacillin twice daily by intramuscular injection was begun. He at first showed some improvement. Dyspnoea lessened, the abdomen and liver decreased in size, temperature fell to a daily maximum of 100° F. However, on the fourteenth hospital day he rapidly became more ill. Dyspnoea, regardless of position, was distressing. Temperature again spiked to 103° F. Re-examination showed a soft, diffuse, subcutaneous swelling about the left shoulder and neck extending to the mid line. Distention of neck veins was now definite.

Venous pressure in the left antecubital vein was 196 mm. of water. Peripheral white blood count was 15,500 cells per cu. mm. with 93 per cent polymorphonuclear cells. A repeated P. A. x-ray examination of the chest showed slight extension of right peri-hilar infiltration. The electrocardiogram showed inversion of T waves in precordial leads.

A working diagnosis of mediastinal and pericardial lymphoma with partial upper and lower vena caval obstruction was made. He was given three daily x-ray treatments to the upper mediastinum, each of 100 Roentgens measured in air. He responded dramatically



Figure 1a. Postero-anterior film of chest showing widened mediastinum and right peri-hilar infiltrate.



Figure 1b. Showing enlargement of cardiac shadow concurrent with pericarditis, right lower pleural effusion and reduction of upper mediastinal widening.

with early relief of dyspnoea. Swelling and venous distention on the left reduced on the fourth day after initiation of radiotherapy. Temperature fell abruptly to a normal range. The white blood cell count fell to 8,000 per cu. mm., polymorphonuclear percentage to 86. Within one week left neck and shoulder swelling had disappeared; the paradoxical pulse was no longer present. Abdominal and hepatic swelling were sharply reduced. Repeat films of the chest showed thinning of the upper mediastinal shadow and reduction in extent of right pulmonary infiltrate. Electrocardiographic findings were essentially unchanged. Blood sedimentation rate continued elevated at 38 mm. per hour. Penicillin was discontinued. The patient was given two additional x-ray treatments over the sternum of 100 Roentgen units each.

He continued to improve rapidly. His weight was 122 pounds after loss of abdominal swelling, against his historical normal weight of 145 pounds. He regained 12 pounds. On the forty-fifth hospital day he was given a three week leave to his home.

He returned on July 27, 1948. He had gained an additional three pounds and felt well. However, four days later he complained of headache and his temperature rose to 101.4° F. Examination showed the border of cardiac dullness 13 cm. left of the mid-sternal line. A Grade I systolic murmur was heard at the mitral area, a pericardial friction rub at the apex. P. A. x-ray examination of the chest (*Figure 1b*) showed a globular enlargement of the cardiac shadow and fluid obscuring the right lower thoracic cavity. An electrocardiogram (*Figure 2*) showed inverted T waves and convexity of the S-T segment in all leads. A hemogram showed 8,000 white blood cells with 84 per cent polymorphonuclear cells; red cell count of 3.6 million cells; hemoglobin of 11.5 gm. per cent; sedimentation rate of 34 mm. fall in 1 hour. Repeated tuberculin sensitivity was again negative to second strength P.P.D.

A right posterior basal thoracentesis recovered 250 cc. of straw colored fluid. Block and section of fluid sediment was negative on microscopic examination. Blood agar culture was negative. Later reports of culture and guinea pig inoculation for acid fast bacillus were also negative. Bronchoscopic and bone marrow examinations were negative.

Within one week the patient became much worse. He again developed dyspnoea. He complained of anterior chest pain when supine. Temperature spiked to 103° F. Venous pressure was measured at 300 mm. of water. X-ray therapy in individual doses of 75 to 100 Roentgens to the mediastinum through three portals was resumed and carried to an additional 1700 Roentgens.

Two weeks later the patient was symptom free. Chest x-ray showed normal size and configuration of

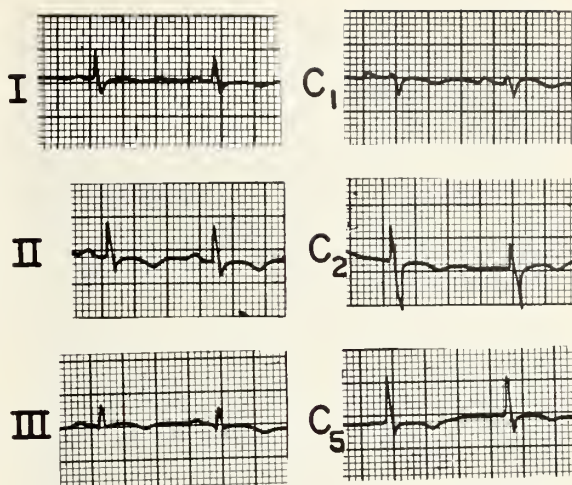


Figure 2. Electrocardiographic tracings at height of clinical pericardial involvement showing ST convexity and T wave inversion.

cardiac and mediastinal shadows; a small right pleural density persisted as did right peri-hilar lung field markings. He was given another three weeks leave to his home.

On return, subjective well being was excellent, he had regained to his usual weight of 144 pounds. The physical examination was negative. Sedimentation rate, hemoglobin, and electrocardiogram remained abnormal. He was discharged to cancer follow-up clinic October 5, 1948.

Second Admission

The patient returned to the hospital December 8, 1948. Subjective health, weight and well being were maintained. One week before, minor trauma had called his attention to a soft swelling in the right chest wall. He also stated that the right nipple had been tender for three weeks. Physical examination showed a small soft tumor mass 2 cm. in diameter seemingly attached to the eighth right rib in the anterior axillary line. An additional similar tumor mass measuring 4 cm. in diameter was attached to the twelfth right rib in the mid-scapular line posteriorly. There was a small, soft, cystic mass behind the right nipple. Examination was otherwise negative. There was no temperature elevation. The hemogram was normal. X-ray of the chest was unchanged, detail for right ribs showed no bony abnormality.

Excision biopsy of the 2 cm. mass over the right eighth rib was performed. No gross involvement of the rib was demonstrable. Microscopic examination showed structureless sheets of small round cells with hyperchromatic nuclei invading muscle (*Figure 3a*). Mitotic figures were numerous. The pathologist's diagnosis was lymphosarcoma.

The excised area, the remaining tumor over the twelfth right rib posteriorly and the right breast were then treated, each with a total of 2,000 Roentgen units of X-Radiation. The tumor area posteriorly rapidly dissolved. There was no change in the small cystic mass beneath the right nipple. Within the month, the patient returned because of similar swelling beneath the left nipple. The major portion of breast tissue was excised bilaterally. Microscopic examination showed epithelial hyperplasia of gynecomastia. No lymphoid tissue was present.

Third Admission

In late February 1949, the patient noticed beginning low back pain with mild reference into the testicles and lower extremities. He was readmitted March 13, 1949, and transferred to Hines Veterans Administration Hospital. En route by train he was unable to urinate. Examination on arrival at Hines Veterans Administration Hospital found him in acute distress from low back pain and suprapubic distention. One thousand and one hundred cc. of urine was obtained by catheterization. Fist percussion over the spine produced pain when applied from the tenth thoracic to the sacral level. Kernig's and Brudzinski's

signs were positive with reference of pain to the mid-lumbar back. All deep tendon reflexes in the lower extremities were exaggerated. Ability to walk was reduced by non-specific weakness of the legs. Sensation was everywhere intact. A comprehensive neurologic and general physical examination was otherwise negative.

Four days after admission he again began to show elevation of temperature spiking to 103° F. X-ray of the chest and complete circulating blood counts were normal. X-ray examination of the lumbar spine showed normal bony detail. Urinalysis showed a trace of albumin and ten to twenty white blood cells per high power field on microscopic examination of sediment. Lumbar spinal puncture recovered clear, slightly xanthochromatic spinal fluid; spinal fluid pressure was 125 mm. of water. This pressure was unaffected by jugular compression but rose to 200 mm. upon abdominal straining. Examination of spinal fluid showed a total cell count of 9 per cu. mm., 8 lymphatic; Ross Jones globulin was 2 plus, total protein 360 mgm. per cent, colloidal gold curve 0122210000, sugar 60 mg. per cent. Culture was negative. Six days later lumbar tap was repeated. Initial pressure was 240 mm. of water. This pressure was again unaffected by jugular pressure but rose to 480 mm. upon abdominal straining. Total protein was 1160 mg. per cent. Three and eight tenths cc. of Pantopaque was introduced into the third lumbar space. Under fluoroscopic examination opaque shadow was everywhere symmetrical until the patient was tilted in the head low position. The opaque column then halted abruptly at the L1-2 interspace. Radioisotope studies using P32 showed a localized concentration of radioactivity over the spinal level D10 to L1.

The patient was unable to void in response to bladder fullness and was maintained on tidal drainage. On the 8th hospital day, repeated neurologic examination showed loss of Achilles tendon reflexes.

On the 11th hospital day, a laminectomy was performed on spinal arches thoracic eleven, twelve and lumbar one. The bone was normal. Upon removal of the arches, a dark, red, soft mass was seen to surround the dura mater like a cylinder extending from the upper margin of thoracic eleven to the upper margin of lumbar two. The tissue was friable and soft permitting removal largely by suction. Tumor tissue anteriorly and laterally could not be reached. There was minimal bleeding. The operative site was closed. Microscopic examination of tissue fragments removed showed solid sheets of lymphocytes. Pathologic diagnosis was lymphosarcoma.

The patient's recovery was uneventful. By May 4 he could walk without difficulty; backache and referred pains were relieved; tendon reflex changes in the lower extremities returned to normal responses.

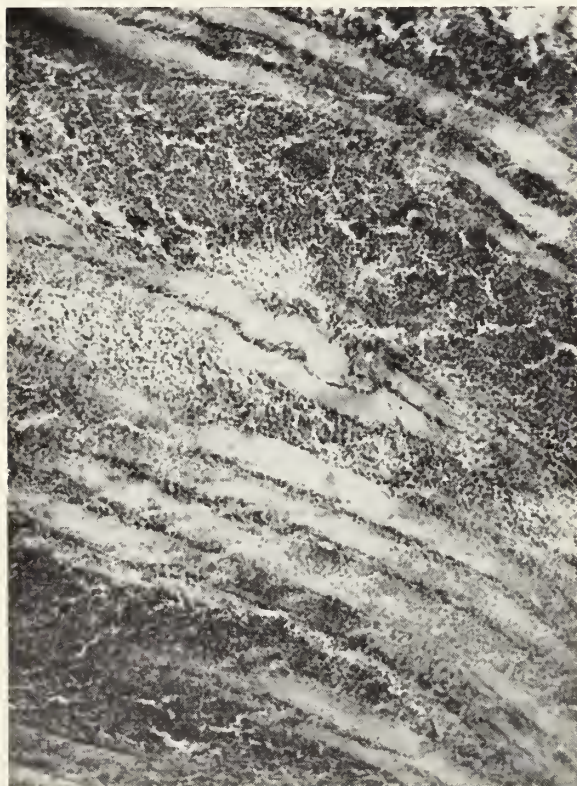


Figure 3a. Microscopic detail of tissue removed by excision biopsy from right anterior chest wall. Note sheets of lymphocytes invading striated muscle.

X-ray therapy through right and left thoraco-lumbar portals was given daily at dosage of 150 Roentgens through each portal. Total dosage was 2550 Roentgens through each portal. He was returned to Wichita Veterans Administration Hospital and was discharged July 6, 1949.

Fourth Admission

The patient returned September 20, 1949. For one week he had been aware of a painless enlargement of the right testicle. He had otherwise maintained good subjective health. Examination showed a painless firm right testicle, enlarged to twice the size of the compared left testicle. There was neither epididymal involvement nor inguinal adenopathy. Intravenous pyelography showed normal filling time, appearance and pelvic and calyceal structure. A Friedman test was negative.

On September 28, 1949, the right testicle was removed via an inferior scrotal incision. The vas was isolated and ligated. The epididymus was examined over its entire length and was everywhere without evidence of infiltration. Microscopic examination of the testicle showed small lymphocytes in sheets invading interstitial tissues (*Figure 3b*). The pathologic diagnosis was lymphosarcoma. The post-operative course was uneventful.

On October 18, 1949, repeated x-ray film of the chest showed slight rewidening of the supra-cardiac shadow and thickening of the interlobar septum between the right upper and middle lobes. An electrocardiogram again showed T wave inversion in all leads. Hemoglobin had fallen to 12.5 gm. per cent, the hemogram was otherwise normal. There was no elevation of temperature. On October 18, 19, 20 and 21, the patient was given divided doses of nitrogen mustard intravenously to a total of 7 mg. He was discharged temporarily October 25, 1949.

He returned to the hospital by plan January 17, 1950. Cephalin flocculation was 2 plus at 48 hours. Serum albumin level was 6.4 mg. per cent, serum globulin 3.2. P. A. x-ray examination of the chest showed recession of the supra-cardiac mediastinal widening noted October 18, 1949. An electrocardiographic tracing showed T wave return to the usual flattened pattern of interval examination. Six and five tenths mg. additional nitrogen mustard was given intravenously on three alternate days. He was discharged February 25, 1950. For six years following he maintained excellent health.

Fifth Admission

On the fourth of January, 1956, he was admitted to Kansas City Veterans Administration Hospital. For the preceding three to four months, he had noted



Figure 3b. Detail of removed right testicle showing invasion of lymphocytes into testicular interstitium. Hematoxylin and Eosin stain, $\times 150$.

intermittent cramping pain in the left upper abdomen. For the past two to three weeks, these pains had increased from transitory to a more frequent and more intense character with some residual abdominal soreness. Bowel habits were unchanged and appearance of the stool had not been noticed as unusual.

The patient appeared in good health. Abdominal and general physical examinations were negative. Proctoscopic examination to 22 cm. was clear. There was no temperature elevation. X-ray of the chest was unchanged. Peripheral blood examination was normal. The electrocardiogram was unchanged. An upper gastrointestinal x-ray examination was negative. Examination of the colon by barium filling showed a 5 cm. narrowing of the distal transverse colon. Contrast examination showed a smaller intra-luminal defect at the inferior margin of this area (*Figure 4a*).

The patient's abdomen was explored via a left upper rectus incision on the 20th hospital day. A small mass was palpable in the distal transverse colon to the left of the mid-colic artery. The lesion was resected with a wide margin. No extra-luminal involvement or enlargement of adjacent lymph nodes were found. Microscopic examination of the tumor showed irregular acinar structures lined by tall col-



Figure 4a. Film of contrast enema showing filling defect (arrow) of distal transverse colon.

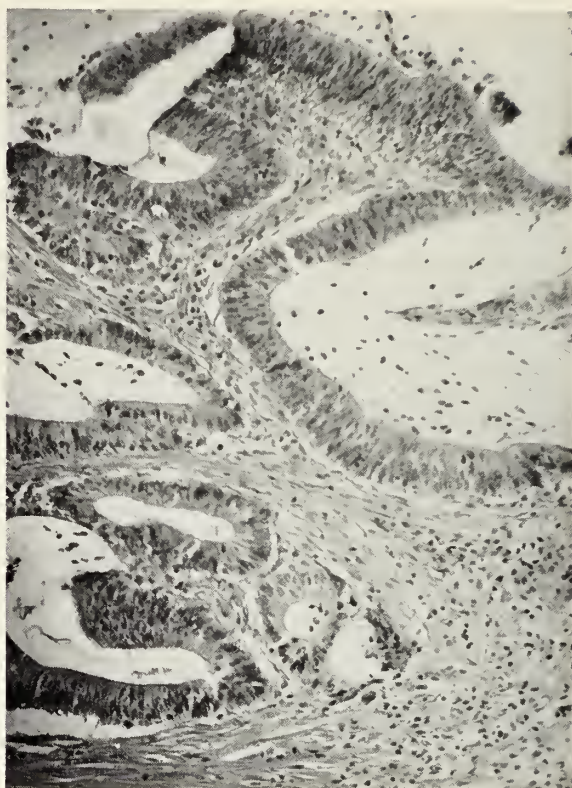


Figure 4b. Microscopic detail of resected tumor of colon showing irregular acinar structures invading the muscularis. Hematoxylin and Eosin stain, $\times 450$.

ummar cells with eosinophilic cytoplasm. Vacuoles contained basophilic mucoid-like material. Nuclei were hyperchromatic and pyknotic. Numerous abnormal mitotic figures were seen. These structures were invasive of muscularis (*Figure 4b*) and serosa. Pathologic diagnosis was adenocarcinoma of the colon. Sections of mesenteric lymph nodes showed neither carcinoma nor lymphosarcoma.

The patient withstood the surgical procedure well. His convalescence was rapid. He was discharged February 3, 1956.

Subsequent Course

The patient has since maintained excellent health. He works regularly on his farm. He reported regularly for cancer follow-up examinations. Physical examinations and laboratory studies have been consistently normal.

He was readmitted to the hospital April 10, 1961, for re-examination marking the eleventh year since his last therapy for lymphosarcoma and the fifth since resection of adenocarcinoma of the colon.

He gave every appearance of a sturdy, healthy adult male. The physical examination was negative except for the presence of surgical scars, absence of the right testicle and skin pigmentation at the sites

of past radiotherapy. He admitted occasional slowness in starting of the urinary stream as his only awareness of residuum of his long experience.

P. A. x-ray examination of the chest was reviewed against an eleven year series. It showed minimal increased bronchovascular markings extending from the right hilum into the posterior basal segment of the right lower lobe. Mediastinal and cardiac shadows were of small normal diameter. An electrocardiogram showed flattened T wave amplitude in standard, aV1, the lateral precordial leads. Comparison with tracings over the past five years showed variance within limits of technical recording. X-ray examination of the colon by barium enema was negative. Urinalysis and peripheral blood studies were normal. Serum alkaline phosphatase was normal.

The patient was discharged to the continued observation of his family physician.

Discussion

Warren and Gates found 3.7 per cent of multiple primary malignant tumors among 1,078 cancer autopsies. They reviewed 1,259 cases of multiple malignancy from the literature and their own series. Malignant tumors of skin, of skin and other systems,

or of the same system, as gastrointestinal, constituted the more common coincidence. Of the 1,259 cases considered, 21 were of carcinoma and sarcoma of different systems. The mean age of appearance of multiple primary malignant tumors was 61.8 years. They felt that an individual with one cancer is more apt to develop a second cancer than he would be expected to do by chance alone.

The case reported here is unusual in its occurrence in a young man. Multicentric appearance of lymphosarcoma is not uncommon, its threats in this case to vital function about the mediastinum and spinal cord were simply an immediate therapeutic challenge. The later appearance of adenocarcinoma of the colon was a rare coincidence; its probability may have been greater than by chance. Recovery, however, from almost regular reappearance of lymphosarcoma at five sites and the early resection of adenocarcinoma of the colon is thought to be of that degree of interest to merit record.

Gilbertsen followed all of 1,340 cases of primary adenocarcinoma of the large bowel seen in the University of Minnesota Hospitals over the period 1940 to 1950. Nine of the cases reported had curative resection of adenocarcinoma of the transverse colon. There was no evidence of spread to connective tissue or lymph nodes. All nine patients survived five years. Alertness during follow-up of lymphosarcoma in the author's case gave opportunity for early resection of the carcinoma of the colon.

Rosenberg, Diamond and Craven studied the effects of therapy and survival from lymphosarcoma in 1,269 patients over 30 years experience at the Memorial Center for Cancer. They report an overall five year survival rate of 28.4 per cent at five years. Their survival curves suggest a 10 per cent survival rate at ten years. Decreased survival with multicentric tumor was not discussed. The author's patient has sur-

vived 13 years since first appearance of tumor and has been free of known recurrence for 11 years.

Radiation therapy of lymphosarcoma was thought by Rosenberg et al. to provide as good results, as measured by survival, as newer agents introduced since 1940. They did, however, feel that venacaval obstruction and spinal cord compression respond more quickly and safely with combination therapy. Except for excision biopsy, surgical relief of spinal cord compression, and orchidectomy, individual appearances of lymphosarcoma in the author's case were successfully treated by X-Radiation. Following the last lymphosarcoma of the testicle, nitrogen mustard therapy was presented because of some suggestion of recurrent activity in the mediastinum and in the hope that it might suppress any unknown nidus of multicentric tumor where multiple reappearance had characterized the patient's course. That it had such effect remains unknown, though it is encouraging to think that it may have had. On the other hand, rare instances of spontaneous regression of malignant disease have been reported.¹ In any event, it is hoped that the good fortune attending this case will encourage others.

The author wishes to acknowledge the contribution to the care of this case of the Neurosurgical staff of Hines Veterans Administration Hospital, of Dr. George A. Higgins, who resected the adenocarcinoma of the colon, and of numerous associates at the Wichita and Kansas City Veterans Administration Hospitals.

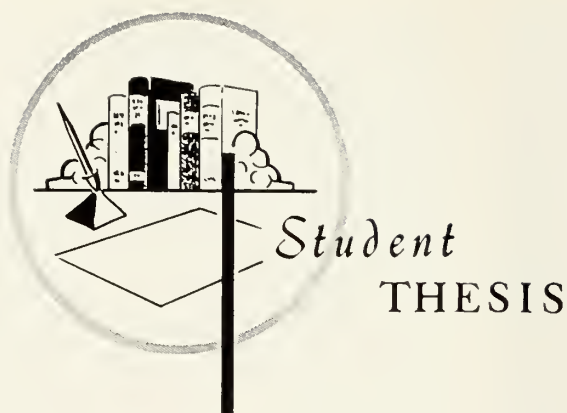
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2. Gilbertsen, V. A.: Adenocarcinoma of the Large Bowel, 1,340 Cases With 100 Per Cent Follow-up, Surgery 46:1027, 1959.
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KANSAS CITY

103rd Annual Convention

April 30, May 1, 2, 1962



Physiopathologic Mechanisms of Symptom Production in Waldenstrom's Macroglobulinemia

WILLIAM N. HAFFNER, M.D., Allentown, Pa.

MUCH HAS BEEN written describing the various phenomena seen in Waldenstrom's Macroglobulinemia since the description of the disease in 1944, but only in the past two to three years has illuminating work been accomplished concerning the physiopathological reasons for the observations made. The intent of this paper, then, is to review the literature in regard to mechanisms producing some of the laboratory and symptomatic phenomena which have been repeatedly documented in Waldenstrom's Macroglobulinemia.

Clinical and Laboratory Data

Essential macroglobulinemia is characteristically a disease of middle aged to elderly people, the highest incidence being between the ages of 50 and 70. The disease was noted sporadically in Europe since its description in 1944, but only since 1954 has it been reported with regularity in the United States. The illness is a Caucasian malady, though one Negro case has been reported. A three to one male to female incidence was observed in Dutcher and Fahey's review of 60 cases.

The most frequent initial complaints are stated to be fatigue and mucosal bleeding, each being found in two-thirds of the 60 cases reviewed. The history often reveals weight loss and frequently recurring upper respiratory infections as long as two years

prior to recognition of the disease. Occasionally a paradox of simultaneous hemorrhagic diathesis and thrombosis has been reported. Due to the protean body involvement of the disease other complaints may refer to practically every system of the body. The illness displays a chronic course of several years, often with relapses and remissions. It is "not amenable to any known therapy, but appears to have a considerably better prognosis than chronic lymphatic leukemia or myeloma, both of which it resembles." Death is usually attributed to general physical debilitation, anemia, and terminal infection.

The disease affects a wide variety of laboratory tests. Dutcher and Fahey's review demonstrated the following laboratory abnormalities. The figures represent number of cases.

	<i>Definitely Present</i>	<i>Definitely Absent</i>	<i>Unknown</i>
Anemia	53	—	7
Leukopenia (less than 5,000/mm ³)	26	25	9
Lymphocytosis (rel. or absolute)	33	17	10
Thrombocytopenia	21	22	17
Bone marrow "abnormal"	56	2	2
Elevated erythrocyte sed. rate	50	3	7
Bence-Jones proteinuria	9	27	24
Cryoglobulins	9	21	30
Positive Sia water test	28	4	28

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. William N. Haffner, M.D. is now serving internship at the Allentown Hospital, Allentown, Pennsylvania.

In addition, the serum viscosity is almost always greatly elevated, often becoming more so as the disease progresses. Cephalin flocculation and thymol turbidity tests are usually above normal values. Serum proteins are increased with low to normal albumin and elevated globulin fractions. Electrophoretic patterns demonstrate abnormal peaks anywhere from the α_2 to slow γ fractions. Various coagulation defects have been demonstrated but are not consistent among cases reported. Ultracentrifugation of the serum establishes the diagnosis of Waldenstrom's Macroglobulinemia by demonstrating that greater than 5 per cent of the proteins are macroglobulins (arbitrarily set as having a Svedberg constant of 15 or greater).

Pathologically, the diagnosis of Waldenstrom's Macroglobulinemia rests on histologic observations. The differential diagnosis is usually between multiple myeloma, lymphoma, chronic lymphatic leukemia, and the macroglobulinemia. Organ involvement is similar to that of the leukemias with cellular infiltration of the bone marrow, liver, spleen, adrenals, and occasionally the brain. The cellular infiltrate of the macroglobulinemia is usually characterized by an abundance of cells which strongly resemble plasma cells, but have quite scanty cytoplasm. Microscopic features differentiating myeloma from Waldenstrom are pleomorphism of the plasmacytoid infiltrate and diffuse involvement of the body organs without actual tumor formation. Differentiation of the disease from lymphoma and chronic lymphatic leukemia is often extremely difficult and may depend on the clinical diagnosis.

As with most diseases involving the blood proteins, there is some debate whether or not the macroglobulin observed is a dysproteinemia or a paraproteinemia. Laurell et al., in a study of the polysaccharide content of macroglobulinemia, concluded that their results "suggested a difference in the chemical composition of the abnormal components of the serum." Qualitative and quantitative studies of amino acid components of the macroglobulin obtained from four patients demonstrated similarities to both β and γ proteins. In addition, extensive immunological work has demonstrated the macroglobulinemia of Waldenstrom to be "immunologically different from other macroglobulins." Since the macroglobulin cannot be characterized definitively as either β or γ at the present time, it probably should be classified as abnormal and therefore a paraprotein. Convincing studies supporting the dysproteinemia hypothesis in the disease under consideration could not be found.

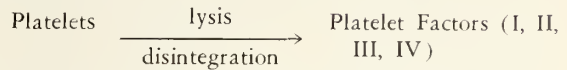
Possible Physiopathological Mechanisms

A. Hemorrhagic Diathesis

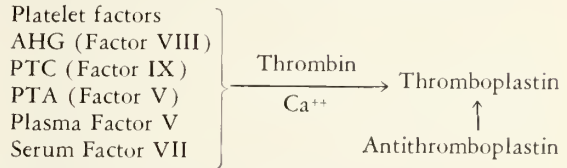
Discussion of possible mechanisms producing symptomatology will first be devoted to bleeding

tendencies. The mechanisms of normal blood clot formation are outlined below.

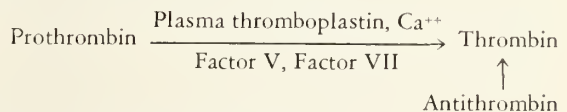
Stage I—Initiator reaction



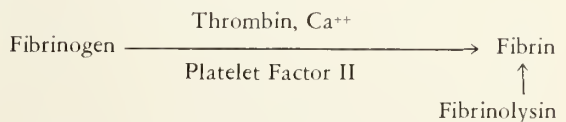
Stage II—Formation of Plasma Thromboplastin



Stage III—Formation of Thrombin



Stage IV—Formation of Fibrin



With the current state of knowledge of clot formation there are, in general, three possible abnormalities which could produce bleeding tendencies:

1. One or more of the components necessary for clotting are simply absent or present in insufficient quantities.

2. The components are present but are unable to react normally because of (a) reactions with a foreign substance present in the body (macroglobulin) which inactivates them, or (b) faulty production or release of the components.

3. There is abnormality of the vessel wall itself. Studies have been performed investigating each of these possibilities to a variable extent.

A review of the literature demonstrated that in no case of macroglobulinemia in which clotting factors were studied were any components necessary for clot formation found to be totally absent. However, in some instances of the reported cases a heterogenous group of coagulation defects have been found. Prothrombin deficiencies, reduced prothrombin conversion, reduced Factor V, reduced Factor VII, decreased fibrinogen, increased antithrombin and slow or absent clot retraction have all been reported in at least one case study. In the light of these findings, no consistent patterns of low values is apparent by which one might explain the bleeding tendency. Prothrombin is the factor most often reported as low, but in no case has the value been low enough to explain the bleeding (lowest prothrombin time, control 12 seconds, patient 22 seconds). Therefore, absence or insufficient production of factors necessary for clotting

does not seem to be the major determinant producing the bleeding tendency seen in Waldenstrom's Macroglobulinemia.

The possibility of abnormal reaction or release of clotting factors, has been thoroughly studied. In a case studied by Long et al., it was suggested that the macroglobulin acted as an Anti Factor V and Anti Factor VII. In another investigation electron microscope studies of platelets in the presence of the macroglobulin of a patient with essential macroglobulinemia (who also had a cryoglobulin) demonstrated that the paraprotein prevented normal pseudopod formation of the patient's and of normal platelets. Experimentation along these two general lines (i.e., study of specific coagulation defects, and study of the blood's cellular elements) has produced the most promising results.

Henstell and Kligerman postulate that the abnormal globulins complex with and/or coprecipitate clotting factors with the consequent inactivation of clotting factors, resulting in hemorrhagic disorders of varying degree. Their study was conducted on seven cases of dysproteinemia or paraproteinemia, of which three cases were essential macroglobulinemia. The first patient proved by laboratory tests to be deficient in Factor VII rather than high in Anti Factor VII. In a later communication the authors investigated the remaining two cases and found what they considered as deficiencies of prothrombin, Factor VII, and Factor V. The assumption that these factors were complexed with the macroglobulins was made on the basis of the fact that normal plasma after addition and reprecipitation of the macroglobulin had a prolonged clotting time.

The observations of Braunsteiner, Falkner, Neumayer, and Pakesch were investigated further by Pachter in a convincing series of experiments using fluorescent antibody techniques on the macroglobulins and platelets. Pachter's group contested Henstell and Kligerman's work when they found that two patients with essential macroglobulinemia had "normal or only slightly lower" levels of all known components of coagulation. The ensuing hypothesis propounded by Pachter was that the macroglobulin coats the cellular elements of the blood preventing the release of the platelet factors. Macroglobulin tagged with fluorescent antibody was incubated with both the patient's and with normal cellular elements of blood. Microscopic studies demonstrated marked adherence of the macroglobulin to all cellular elements. Thromboplastin generation tests of coated platelets were found to be abnormal, but after disintegration of the platelets with ultrasound the values returned to normal range. It was felt that lack of platelet factor III in particular was responsible for the abnormal thromboplastin generation tests. The evidence pre-

sented strongly suggests that platelet coating by macroglobulin is responsible for the hemorrhagic diathesis frequently seen with the disease.

In a later article Pachter reported on the relationships between macroglobulin and the cell wall of the platelets. In this study macroglobulin with sedimentation constants of 30S, 24S, and 16S were depolymerized to a constant of 6S and incubated with platelets. In this system abnormal thromboplastin generation tests were not observed. Reaggregation of the macroglobulin to constants of 17S, 15S, and 8S again produced coating of the platelets, although of lesser degree than the natural macroglobulin. From this evidence it was concluded that "molecular size is of paramount importance in preventing release of platelet factor III." The final scheme drawn from Pachter's work is represented in the diagram on page 109.

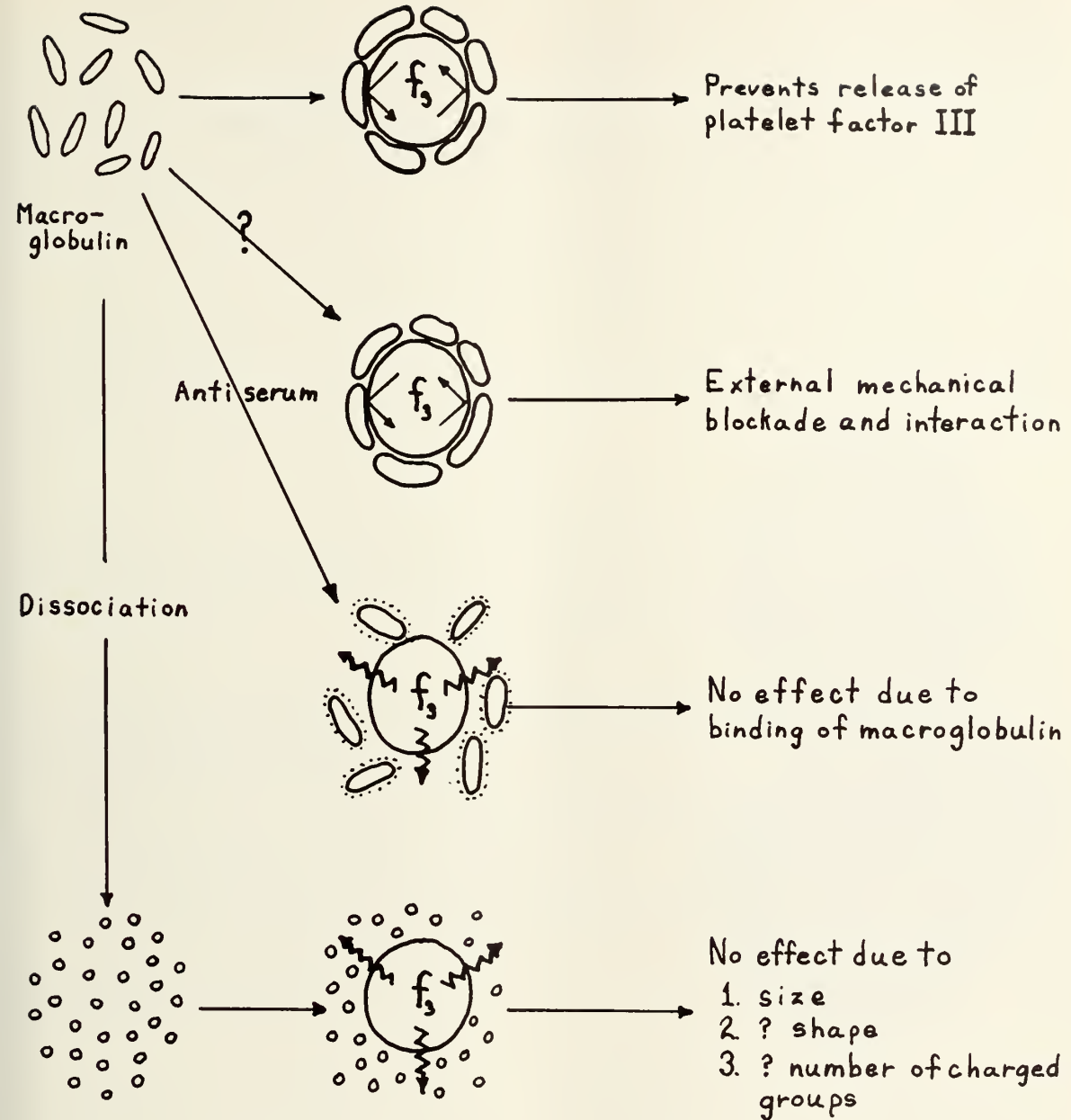
The third possibility, that of abnormality of the vessel wall itself, has not been studied per se. However, pathological studies have demonstrated no abnormalities other than the normal degenerative findings usually seen in the 50-70 age group.

B. Thrombotic Tendency

The cause of concurrent thrombosis with hemorrhagic diathesis has thus far not been experimentally solved. Henstell and Kligerman felt that "an unstable clotting mechanism and/or increased local concentrations of clotting factors" could result in a "thrombotic tendency." Causes more commonly proposed are of a mechanical nature. It is currently believed that the greatly increased serum viscosity, the presence of large macroglobulins, and marked rouleau formation would be sufficient to produce thrombosis. In addition, some cases of Waldenstrom's Macroglobulinemia also have a cryoglobulin, adding to the thrombotic possibilities, especially on exposed portions of the body. However, evidence of sludge effect was noted in patients without cryoglobulinemia by use of slit-lamp evaluation of the conjunctiva. Therefore, cryoglobulins do not appear to be a necessary component of intravascular thrombosis.

C. Infections and Fatigue

The theory that blood cell coating by the macroglobulin prevents normal clot formation could easily be extended as the cause of recurrent infections and fatigue. The fluorescent antibody study clearly demonstrated that white blood cells and red blood cells are also coated with macroglobulins. The observations of inhibited normal pseudopod movements of blood cells, and the presence of a mechanical barrier produced by the macroglobulin coating could possibly account for decreased body resistance to infection in that the coating may prevent normal leukotaxis and imbibition of infective organisms. It is likely that the mechanical barrier interferes with the oxygen transfer of



the red blood cells; and this, superimposed upon the anemia, would account for the profound fatigue seen in this disease.

Therapy

Various modes of therapy have been tried in Waldenström's Macroglobulinemia, and most methods have produced discouraging results. Cancer chemotherapeutics have produced notably poor results. Plasmapheresis has been tried in several cases with good temporary improvement, but, as would be expected, soon after discontinuation of the procedure the symptomatology recurs. Recently, most efforts

have been directed at depolymerization of the macroglobulin in the hope that symptomatic relief would occur. Deutsch and Morton found that mercaptans, in vitro, would break down the macroglobulin of one case to a uniform component of 6S. Bloch et al. postulated that sulfhydryl compounds may produce the same effect, and demonstrated that DL-penicillamine would be effective. However, use of this agent in vivo has produced two conflicting reports. Levine, Hammack, and Frommeyer established that the agent would produce normalization of the relative viscosity and depolymerization of the macroglobulin, but noted "no clinical change" in the two patients ob-

served. On the other hand, similar treatment of a patient by Ritzmann, Cole, and Levine produced similar laboratory results; but in addition "there was marked clinical improvement, which was reflected by disappearance of cold intolerance, cessation of hemorrhagic diathesis with normalization of clotting status, increase in appetite and weight, and generalized feeling of well being." Dosages of one or two grams per day were used in both experiments, but in the former case the duration of treatment is not stated. The case showing clinical improvement was treated 19 days. The latter report allows some hope of symptomatic relief by use of penicillin or DL-penicillamine, but the experiment remains to be confirmed.

Summary

1. A review of the literature concerned with the macroglobulinemia of Waldenstrom has been made.

2. Experimental evidence tends to support best the hypothesis stating that the frequently observed hemorrhagic diathesis is caused by coating of the platelets with macroglobulin, thereby preventing release of platelet factors.

3. The size of the particle probably plays an important role in the macroglobulin-cell wall relationship.

4. It is likely that treatment directed at disassociating the macroglobulin into smaller components may produce improvement of symptomatology, but this remains to be confirmed.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

To Serve the Physician

(Continued from page 95)

and with seeing patients in the office, makes it particularly difficult for the practicing physician to meet students. We find a partial solution in Medical Center tours, visits with general-practice-oriented senior resident physicians, and faculty talks on careers. Possibly these can be supplemented occasionally by late-day meetings of doctors with youth groups, particularly in the larger cities.* The observations noted in the footnote below do not surprise this reporter. Rural high school students have opportunities to get acquainted with the doctor very generally denied to city boys and girls.

* A study of college seniors who abandon their plans for a medical education, Table 4, p. 929, *Journal of Medical Education*, Vol. 36, August, 1961. Places of residence and images of the physician, country favorable, city unfavorable.

NOMINATING COMMITTEE

T. P. Butcher, Emporia, Chairman; C. M. Barnes, Seneca; C. W. Miller, Wichita; L. S. Nelson, Sr., Salina; H. N. Tihen, Wichita.

The Nominating Committee, as selected by the House of Delegates last May, submits to the House of Delegates the following slate of candidates:

The Committee endorsed the following slate of officers. For the office of:

President-Elect

H. St. Clair O'Donnell, M.D., Ellsworth. Born in 1893. Graduated from Washington University School of Medicine in 1917. Has held various offices in the Kansas Medical Society and has been a councilor.

First Vice President

J. C. Mitchell, M.D., Salina. Born in 1913. Graduated from Kansas University School of Medicine in 1938. Has held various offices and has served as councilor.

Second Vice President

G. E. Burket, Jr., M.D., Kingman. Born in 1912. Graduated from Kansas University School of Medicine in 1937. Has been secretary and chairman of Society committees.

D. B. McKee, M.D., Pittsburg. Born in 1896. Graduated from Kansas University School of Medicine in 1928. Has been councilor and a member of the Board of Health.

J. L. Morgan, M.D., Emporia. Born in 1915. Graduated from University of Pennsylvania School of Medicine in 1940. Has been councilor and chairman of committees.

H. P. Palmer, M.D., Scott City. Born in 1897. Graduated from Kansas University School of Medicine in 1929. Has been councilor and has served on committees.

L. W. Reynolds, M.D., Hays. Born in 1910. Graduated from Ohio State University Medical School in 1934. Has been councilor and president of Kansas Blue Shield.

Secretary

Leland Speer, M.D., Kansas City, Kansas. Born in 1912. Graduated from Kansas University School of Medicine in 1936. Is currently serving as Secretary.

(Continued on page 116)

The President's Message

DEAR DOCTOR:

The Kansas Medical Society, in conjunction with the Medical Auxiliary, will again conduct a Junior-Senior Day at the Kansas University Medical School. The date is March 26, 1962.

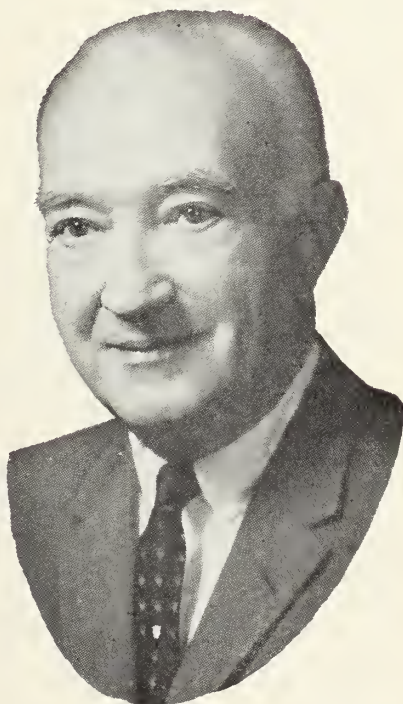
These meetings are of the utmost importance, particularly at this time when the future of medicine rests upon the shoulders of those graduating in the next several years.

It is the hope of the Medical Society to have speakers on the program who will be able to outline what they think is pertinent and extremely apropos at this time when, through the media of panels on television, magazines and some columnists, a definite attempt is made to indoctrinate the professional young men with socialistic ideas, instead of the free enterprise system which has made medicine great.

We also hope to be of service in explaining the responsibilities of the doctors in the present day of changing times and self-preservation.

The President of the Medical Auxiliary, Mrs. William Braun, and Auxiliary members will again entertain the doctors' wives and have arranged an excellent program.

May I also remind the members of K.M.A. to make arrangements for the State Meeting to be held at the Town House, Kansas City, Kansas, April 30, May 1 and 2. A fine outstanding program is being planned by the Wyandotte County Society. Remember the dates and make reservations.



Yours very truly,

A stylized, cursive handwritten signature in dark ink. The signature appears to read "W. A. Rightman".

President

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

RECENT ACQUISITIONS

- Am. College of Surgeons. Surgical Forum. Am. College of Surgeons. 1961.
Boies, L. R. Fundamentals of otolaryngology. Saunders. 1961.
Brest, A. N. Hypertension—Recent Advances. Lea & Febiger. 1961.
Caffey, J. Pediatric x-ray diagnosis. Year Book Pub. 1961.
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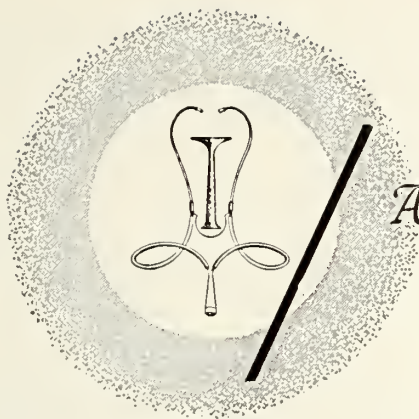
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(Continued on page 116)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

An introductory course on "Expanded Surgery of the Nasal Septum and closely related structures" will be presented at the St. Michael Hospital, Milwaukee, May 16-19 with the co-operation of the American Rhinologic Society.

Dr. Maurice H. Cottle of Chicago, professor of otorhinolaryngology at the Chicago Medical School, will be the guest director.

The course will consist of lectures, laboratory, and surgical demonstrations. For further information write to the Educational Committee, American Rhinologic Society, 530 Hawthorne Place, Chicago 13, Illinois.

The Sixth Postgraduate Course on Fractures and Other Trauma sponsored by the Chicago Committee on Trauma of the American College of Surgeons will be held April 25, 26, 27, and 28, 1962, at the John B. Murphy Memorial Auditorium, 50 East Erie Street, Chicago, Illinois.

Eight guest speakers and teachers from the five medical schools of Chicago will discuss many phases of Trauma, with particular emphasis on hand injuries, plastic surgery, tendon injuries, peripheral nerve injuries, fractures and dislocations in adults and children; trauma to the face, chest, abdomen, blood vessels, and genitourinary tract; bone grafts, athletic injuries, tetanus, shock, and trauma to the lumbar discs. Following each presentation there will be ample time allotted for a question and answer period. There will also be guest speakers from outside the Chicago Area.

Inquiries should be addressed to Dr. John J. Fahey, 1791 West Howard Street, Chicago 26, Illinois.

A new book, "Anesthesia and the Law" by Carl Erwin Wasmuth, M.D., LL.B., has just been pub-

lished by Charles C Thomas Company, Springfield, Illinois.

Dr. Wasmuth's book, which is 105 pages long, is not a general summary of the legal problem but a point-by-point handbook containing very specific advice following the theory that "the best way to fight a lawsuit is to prevent it."

The price of this book is not known. Those desiring to order a copy may do so by writing to the Charles C Thomas Publishing Company, Springfield, Illinois.

The 14th annual meeting of the Southwestern Surgical Congress will be held at the Western Skies Hotel, Albuquerque, New Mexico, April 2-5. Contact Robert B. Howard, M.D., Secretary-Treasurer, 301 Pastuer Building, Oklahoma City 3, Oklahoma, for further information.

The 10th annual clinical meeting of the American College of Obstetrics and Gynecologists will be in the Palmer House, Chicago, Illinois, April 2-4.

Guest speakers will include Luther L. Terry, M.D., Surgeon General of the U. S. Public Health Service and Dr. Bruce T. Mayes, Professor of Obstetrics, University of Sydney, and director of the Queen Elizabeth Research Institute for Mothers and Infants at Sydney, Australia.

Five postgraduate courses will be offered in a two-day program immediately preceding the meeting. These courses will cover obstetrical and gynecological aspects of Steroid Metabolism, Fundamental Concepts in Metabolism, Pathology, Endocrinology, and Radical Pelvic Surgery.

Inquiries regarding the meeting should be directed to The American College of Obstetricians and Gynecologists, 79 West Monroe Street, Chicago 3, Illinois.



Personalities—IN KANSAS MEDICINE

Dr. Charles W. Wilson recently moved from St. Francis to LaCrosse, and began his practice there in February.

P. L. Beiderwell, M.D. and **E. J. Chaney, M.D.**, both of Belleville, were among the 50 doctors who attended a Federal Aviation Medical Seminar in January at the Kansas University Medical Center.

Dr. P. G. Price, Wellington, has been appointed director of the Sumner County Health Department. He replaces **Dr. H. L. Cobean**, Wellington, who retired in January.

Dr. W. E. McAllaster, recently of Kansas City, has moved to Great Bend, where he will be associated with **Dr. D. A. Kendall** and **Dr. Charles Repogle**.

Dr. John Blank, Hutchinson, will head a Reno County Medical Association committee to study the organization of an emergency call system for Hutchinson, which would provide immediate contact with a doctor in emergency situations.

Dr. Sung Kwak, former director of the Hillcrest Sanatorium in Topeka, has been appointed superintendent of the Norton Tuberculosis Sanatorium. He succeeds **Dr. C. F. Taylor** who died in December.

New officers of the Smith County Medical Society are **Dr. D. A. Hardman**, president; **Dr. Hugh J. Woods**, vice president; and **Dr. V. E. Watts**, secretary. **Dr. R. G. Sheppard** was elected delegate to the state convention. All are residents of Smith Center.

H. L. Lawless, M.D., Blue Rapids, has accepted

the appointment as Marshall County Health officer. He replaces **Dr. M. A. Brawley**, Frankfort, who served during 1961.

Governor John Anderson has appointed **Dr. Richard L. Merkel** and **Dr. Richard H. Riedel**, both of Topeka, to the Advisory Commission in Institutional Management and Community Health Program.

Dr. Robert Grene, formerly of LaCrosse, moved to Junction City in January to begin his practice.

Dr. Lewis G. Allen was elected president of the medical staff of Bethany hospital, Kansas City. Other officers elected were: **Dr. M. R. Fitzpatrick**, president-elect; **Dr. Doris Kubin**, vice president; and **Dr. Henry B. Sullivan**, secretary-treasurer. The executive committee of the hospital also includes for 1962 **Drs. O. W. Davidson**, **William H. Algie**, **Charles Crockett**, and **James G. Lee**, all of Kansas City.

Dr. A. S. Reece, Gardner, has been elected president of the Gardner Community Medical Center.

New officers of the Sedgwick County Medical Society are **Dr. G. F. Gsell**, president; **Dr. Leo P. Cawley**, vice president; **Dr. Jack G. Phipps**, secretary, and **Dr. N. K. Pullman**, treasurer.

New president of the medical staff at St. Joseph Hospital, Wichita, is **Dr. F. F. Nyberg** who succeeds **Dr. Ross Skinner**. Serving with him will be **Dr. B. W. Barker**, president-elect; **Dr. M. M. Tinterow**, vice president; **Dr. F. K. Hartley**, secretary, and **Dr. Paul Murphy**, treasurer.

(Continued on page 116)



EDITOR'S NOTE: Since the appearance of a recent editorial in the *Saturday Evening Post* many persons have considered the possibility of replying to the editor of that magazine. Below is an inspired statement from the editor of a Kansas newspaper. This editorial received an answer from the editor of the *Post*, which in turn, drew additional fire from the editor of the *Ellsworth Messenger*.

The Editorial Board of the *JOURNAL* believes you will not only enjoy this editorial but will be heartened by its content.

What's happened to the *Saturday Evening Post*, some of my friends are asking?

What happened? The *Post* changed editors and in the process changed editorial complexion from the blended hues of Midwestern red, white and blue to the blood-shot pink of liberalism's fantasy world.

Kansas conservatives like myself, mourning the loss of a conservative senator, might mourn the more for loss of a conservative voice in the Great *Saturday Evening Post*. The *Post* was one of the last frontiers of conservatism in the big time journalistic field. It wielded a mighty influence. And now it is just another syrupy voice for the liberal left.

Post Editor Fuoss zeroed in on doctors and the American Medical Association last week. In typical liberal manner he wiped out argument by simply stating that no ground for argument exists. There aren't two sides, there is only our side, so say the liberals. He calls attention to the increase in malpractice suits, which makes me think it is too bad there isn't a legal recourse for editorial malpractice. The liberals could be sued right out of their socialistic pants.

The Fuoss editorial on the A.M.A. is a perfect example of the liberal attack. All the way through Fuoss beats words together in clamorous assertion of appreciation of the great contribution doctors have made, are making and will make to the world at large (far, far greater, be it confessed, than the Fuoss ilk ever did or ever will). With his love of the Dr. Kildare and semblance of fairness established he moves in for an operation of his own and with surgical skill proceeds to perform a bloody character-

otomy on the medics and their national organization, the A.M.A.

He cites the doctors for having been opposed to everything, including medical insurance—no proof, and utterly unprovable because it is untrue. Then, with grand sweep, completely cutting away all vestige of historical fact, he remarks, "The doctors as a group have in essence been against almost everything that America is for." How "mal" in practice can you get, Mr. Fuoss, one wonders? This in the essence of what surely will be known later as the Great Smear Age.

I know four doctors here in my home town and have known many more over state and nation and I have never known a single one of whom it wouldn't be rank libel as well as gross untruth to state that he is against everything America is for. On the contrary, the men I know have been against the socialistic fungus that is trying to destroy America, and have been for the great glory of American individual initiative, independence, self-reliance, honesty in financial matters, personal and governmental; have been steadfast in faith that the climate of freedom holds assurance of higher living standard, more of security and needed medical attention for everyone than any other system on earth.

The *Post* editor shows that he is a disciple of that fastidious liberal practice of the great lie told in mild voice as if here is something so obvious no one needs shout about it. "So far as we know," says Fuoss, with tranquilizing calmness, "there is no serious support anywhere in America for anything resembling socialized medicine."

Oh, brother! How big can even a big lie be! Of course, Editor Fuoss goes on next to assert that the mis-called Medicare bill is just a simple prescription of old fashioned Americanism to be taken regularly each morning before breakfast.

But enough said. Let's leave our doctors on the operating table, cut open from conviction to patriotism, from ideal to love of freedom. Mr. Fuoss has

said he loves them, admires and respects them so surely he will see to it that only a few infected sponges and surgical instruments are left inside for festering before sewing up the gaping wounds he has inflicted.

We readers carry away with us the implanted suggestions that socialism is really Americanism of higher order, that regimentation with free medical service is "responsible statesmanship," and that all would be for the best in this best of all liberal worlds if the docs would start communizing their attitude and the A.M.A.

Heil, liberalism!—Dwight Payton, *The Ellsworth Messenger*, January 29, 1962.

Post Editor Replies

Dear Mr. Payton:

Despite the fact that your intent was to skin me alive, I still enjoyed your letter. Differences of opinion—even violent ones—have never seemed offensive to me. Flail away as vigorously as you wish.

Since you accuse me of the "great lie told in a mild voice," permit me to return the compliment. If you know of any individual who advocates socialized medicine please send me his name.

Robert Fuoss, Editor
Saturday Evening Post

(Note from the *Messenger* Editor: My Webster defines socialism as "great extension of government action . . . a political and economic theory of social organization based on collective or governmental ownership and democratic management of the essential means for the production and distribution of goods.")

In other words socialism is government intrusion into fields of private endeavor. When government proposes to intrude into the field of hospital and medical care by forcing everyone to shell out more taxes for the political promise of hospital bills paid by government that is socialism pure and simple.

Fuoss asks that I name a single advocate of socialized medicine and I name Robert Fuoss, along with the host of other liberal leaners bent on "welfarizing" away our precious freedom through compulsory participation in a program of political assistance with medical bills.

Fuoss knows he is talking tommyrot in brazening out his socialistic stand on a ridiculous point of semantics. If I were arguing with a 12-year-old I might have expected such. With the *Saturday Evening Post* Editor one can only conclude that great is the flexibility of the leftist mind—and conscience.

Fuoss probably doesn't know of a single dollar debt owed by federal government either, but would claim that the \$300 billion on which government pays interest is actually an asset.)

Nominating Committee

(Continued from page 110)

Treasurer

J. L. Lattimore, M.D., Topeka. Born in 1894. Graduated from Fort Worth School of Medicine in 1918. Is currently serving as Treasurer.

A.M.A. Delegate

L. R. Pyle, M.D., Topeka. Born in 1901. Graduated from Rush Medical College in 1928. Is currently serving as A.M.A. Delegate.

Alternate A.M.A. Delegate

G. R. Peters, M.D., Kansas City. Born in 1912. Graduated from Kansas University School of Medicine in 1937. Is currently serving as Alternate A.M.A. Delegate.

From the Stacks

(Continued from page 112)

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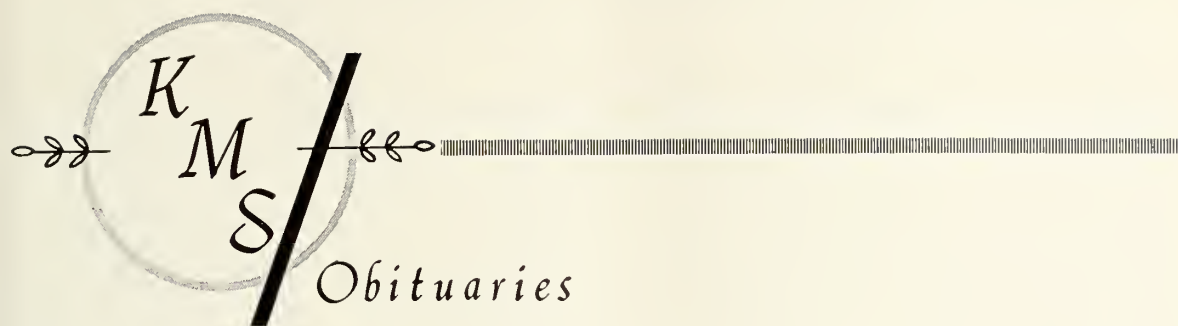
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Personalities

(Continued from page 114)

Dr. L. A. Clark, Harper, moved to Junction City in February where he will practice in partnership with Dr. L. V. Borgandale.

The American Journal of Obstetrics and Gynecology published an article by **Dr. D. L. Snow** of Leavenworth, in its January issue.



R. GROVER SCHOONHOVEN

Dr. R. G. Schoonhoven, 77, Manhattan died of a heart attack on January 17. He was born August 18, 1884, in Riley and lived all of his life in that area. He attended the University Medical College of Kansas City and graduated in 1912.

Dr. Schoonhoven was a member of the First Methodist Church, Masons, Shriners, Eastern Star, Kiwanis Club and Chamber of Commerce. He was also a member of the Kansas Medical Society and the American Medical Association.

His widow, Harriet, and one son survive.

T. WALKER WEAVER

Dr. T. W. Weaver, 76, died January 29 in the St. Francis Hospital, Wichita.

He was born July 14, 1885 in Maize, Kansas. He graduated from the Washington University School of Medicine in St. Louis in 1912 and returned to Wichita to begin his practice.

Active in civic affairs, Dr. Weaver served on the City Commission, Board of Education, and was a former mayor of Wichita. He was a member of the Sedgwick County and the Kansas Medical Societies, American Medical Association and the American Academy of Ophthalmology.

Dr. Weaver is survived by his wife, Helen, two daughters and five sons, including Drs. Jack D. Weaver and J. Robert Weaver of Wichita.

ARTHUR H. HAYNES

Dr. A. H. Haynes, 69, Sabetha, died January 23 in St. Anthony's Hospital at Sabetha.

He was born in Sabetha on November 18, 1892. He received his B.A. degree from the University of Kansas and completed his studies at Washington University in St. Louis.

During World War I, Dr. Haynes served in the Medical Corps and returned to Sabetha to begin his medical practice.

Dr. Haynes was active in civic affairs and was a member of the Sabetha Masonic Lodge and the Congregational Church.

His wife preceded him in death in 1957.

The Kansas Medical Society—1961-1962

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Wyandotte.....	C. L. Francisco, Kansas City.....	C. L. Young, Kansas City



G-U X-Ray

Radiographic Examination of the Urinary Tract

KARL A. YOUNGSTROM, M.D., Kansas City*

ALTHOUGH THE PLAIN FILM of the abdomen, intravenous pyelography and retrograde pyelography still represent the standard methods of examination, there have been developed some additional procedures which have not been promptly adopted. Hence the basis for this communication. The methods to which I will refer are not especially new, but their applications to the study of urinary tract deserve to be more fully appreciated and their indications more clearly defined.

For many years it has been general practice to fast a patient for approximately 15 hours before an intravenous pyelogram. This method of preparing the patient has recently been subjected to serious study.¹ As a result it may now be said that there is more variation between individual patients in their ability to concentrate the contrast material in their urine than there is in one and same person between the state of hydration and dehydration. These experiments also showed that fasting and purging tend to stress the patient, hence contribute to more swallowing of air and therefore more gas in the small bowel to interfere with the quality of the plain radiograph. It would seem practical, therefore, to fast a person only if it does not discomfort him, or delay the examination.

* Department of Radiology, University of Kansas Medical Center.

This study was aided in part by grants from the Kansas Division of the American Cancer Society and from the Office of Vocational Rehabilitation, Department of Health, Education and Welfare, Washington, D. C.

To obtain satisfactory studies in the presence of gas and dense fecal material in the intestinal tract, planography is the method of choice (*Figure 1*). This is an established radiographic procedure that is available in virtually every radiology department. Only relatively simple and comparatively inexpensive equipment is required, but the application of this method to routine filming during intravenous urography is a relatively new practice. The advantages are most apparent when it is necessary to obtain views of the upper urinary tract through the bowels of the acutely ill patient. At least one radiology department has been using nephrotomography routinely for several years with gratifying results.² A list of the pros and cons of the method might read somewhat as follows: *Pros* (1) Details of kidneys, ureters and retroperitoneal structures are frequently revealed that are not demonstrable in the plain radiograph. (2) No preparation of the patient is required, and ineffective purging is not a handicap. (3) Necessary equipment either already at hand or easily obtained at minimal expense. (4) The procedure is easily accomplished by any x-ray technician. (5) The necessary equipment can be attached to virtually any existing x-ray machine. (6) One exposure may be used to cut several views. *Cons* (1) A somewhat higher x-ray dose to the patient per exposure is required. (2) Smoothly operating well machined equipment is required for sharp, clear views. (3) A long exposure is required necessitating patient cooperation or special fixation of the patient.



Figure 1a. Intravenous pyelogram in which the usual plain film of the abdomen fails to reveal the left kidney and calyces.



Figure 1b. A planogram at the level of the kidneys shows them both well and demonstrating normal anatomy.

Renal arteriography is another method that has undergone some refinements in technique resulting in safer and more informative studies with the application of arterial catheterization (Figure 2). Arteriography is essential for the delineation of arterial plaques that may be amenable to surgical treatment, but it also contributes most effectively in the differentiation of kidney tumors with a high degree of accuracy.³ Evaluation of kidney size, cortical thickness and vascularity of the kidney in the hypertensive patient can also be accomplished. Some of the problems connected with this procedure and methods for dealing with them are as follows: (1) To avoid damage to kidney or neurological structures, keep the volume and concentration of the contrast material to a minimum. (2) To make certain of catheter tip location, fluoroscopic control and a small preliminary injection

are desirable. (3) To obtain the most information and avoid repeat injections, appropriate serial-graphic and radiographic equipment are necessary, as well as meticulous exposure technique. (4) Although the procedure is expensive in use of time and personnel, the results are usually quite decisive.

The third and last method that I will mention is the voiding cystogram. It is generally conceded that any study of the voiding process is better than no study at all. The examination may be accomplished by a film after voiding, following the usual intravenous pyelogram. Serial recording during the voiding act is definitely preferable. Cine-fluorography seems to be the best solution of this problem at present (Figure 3). The cine-fluorocystogram is most

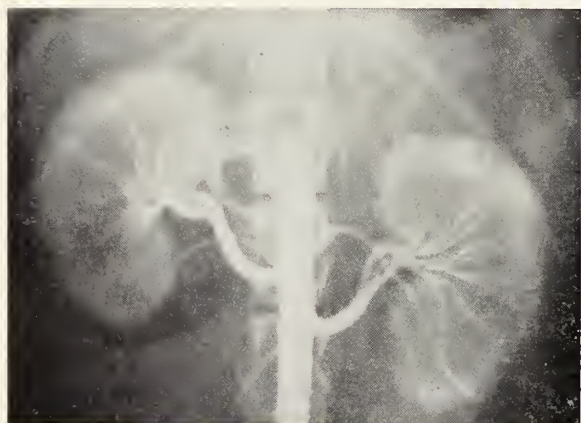


Figure 2. Demonstrates the nephrographic effect of the late arterial phase of renal arteriography in a dog with catheter in the aorta. The delineation of the cortex and medulla of the kidney are in striking contrast at this phase while the arterial supply is still seen.



Figure 3a

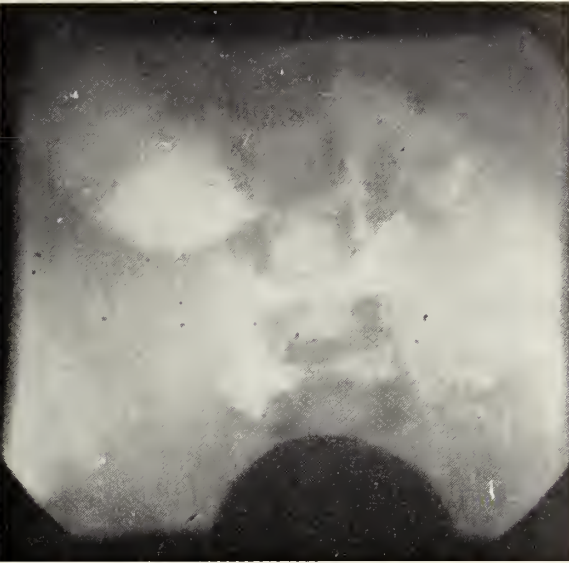
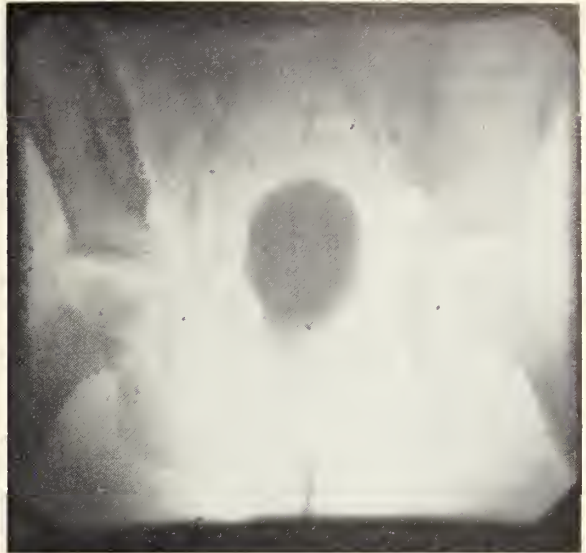
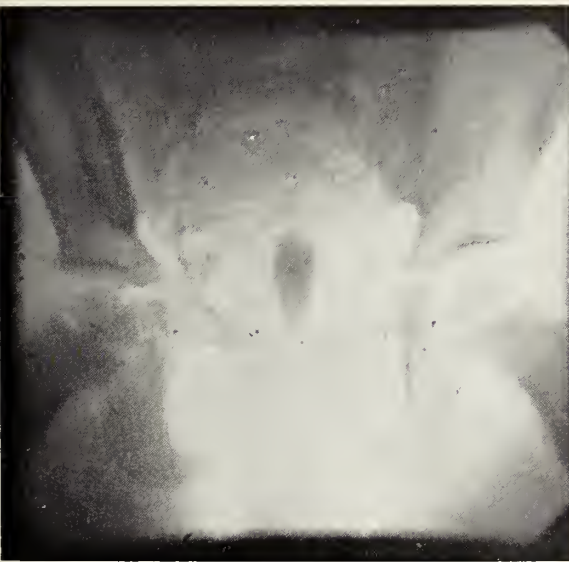
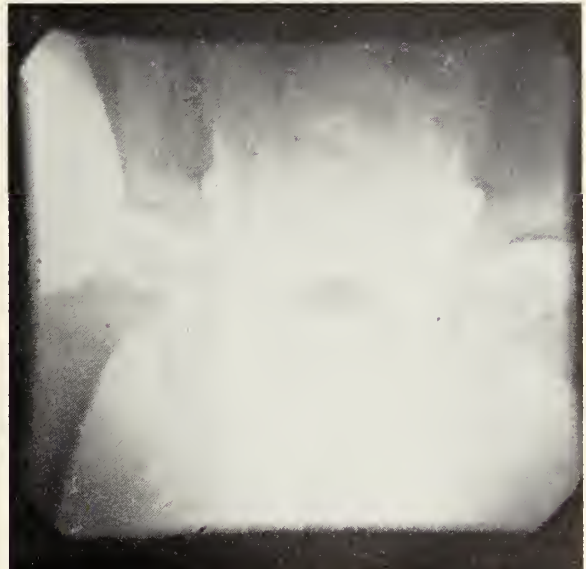
*Figure 3b**Figure 3c**Figure 3d**Figure 3e*

Figure 3. Frames from a cine-fluoroscystogram of a child showing (a) reflux into both ureters during filling of the bladder with 20 per cent Hypaque in sterile saline; (b) shows reflux into the pelvis and calyces of the right kidney. There is no reflux on the left at this time. (c) during the act of voiding bilateral reflux into both ureters is again evident. (d) represents the condition at the completion of urination with the bladder contracted and containing some residual fluid and both ureters still filled with the reflux. (e) a few seconds later the bladder relaxed and the right ureter had almost completely emptied while there was still some contrast material in the left ureter.

commonly done on children who have a history of recurrent urinary tract infection. The principal value of the examination is the early detection of bladder neck obstruction. This is particularly important since surgical correction of the condition has become quite well developed. Because these are very young patients with the gonads necessarily in the field of radiation, special consideration must be given to the x-ray dose utilized for the study. In this connection it can be said that cine-fluorography can be accomplished with no more radiation to the patient, and may be done with less than that required for serial radiography as employed by Hansen, using all the best modern methods to reduce exposure, such as high voltage, aluminum filtration of the x-ray beam, fast screens and limitation of the size of the x-ray beam. This low dose rate with cine-fluorography is accomplished by using modern intensifier techniques with pulsed synchronous x-ray.

The equipment we are presently employing for these studies consists of a nine inch Phillips image intensified with a brightness gain of three thousand times that of the standard fluorescent screen, a 35 mm motion picture camera with a F 1.9 lens of 83 mm focal length. The camera has been adapted to provide a signal to a Dynapulse for switching power to the x-ray tube synchronous with the shutter opening. For the average child examined having a 12 cm abdomen the equipment is operated at 80 KV, 100 milliamperes peaks with a square wave pulse width of 2 milliseconds and the rate of 4 exposures per second, 2 mm aluminum filtration with the x-ray tube 20 inches from the table-top, the dose to the skin of the patient including backscatter is 0.75 r per minute. This is approximately the dose rate of standard fluoroscopy, and the image can be viewed on the television monitor at the time of filming by diversion of ten per cent of the light from the intensifier to the television camera. The usual examination requires from 20 to 35 seconds of cine recording, meaning a dose to the gonads for girls of 55 to 75 milliroentgens. The cine record, of course, provides a method of viewing and reviewing, both still frames and motion, without any further exposure to the patient. Our currently available 16 mm motion picture camera purchased for another purpose, operates only at 24 frames per second. Although it employs a faster 37 mm F 1.1 lens, the x-ray dose to the patient with it is about 55 per cent higher.

At the present writing we have accomplished forty examinations of this type. It has been of special interest to discover the variety of situations under which residual urine is seen in the bladder after voiding. In some cases the tone of the musculature in the bladder neck is such as to prevent complete emptying of the bladder, and after a small amount of emptying

the urgency subsides. In other cases there is prompt and complete voiding, but reflux which had occurred into the ureters does not empty at the same time, and results in partial refilling of the bladder shortly after completion of the voiding act. In other cases there is reflux into the ureters only during the act of voiding. Such information dictates the therapeutic approach which may be life saving.

Early recognition of bladder neck obstruction when it exists is of tremendous importance to the child. Conger and Taub have stated the case thusly: "It should be the rule of every newborn nursery to make sure that no baby is discharged from the hospital until it has been observed by qualified personnel to void a good stream. This would assure recognition of the baby with a potentially lethal urinary obstruction at the best possible time for its correction."

Vesico-ureteral reflux rarely, if ever, occurs in the normal child in our experience as in that of Rooney and others which he mentions. In any child with recurrent urinary tract infection we have come to regard the voiding cystogram as specially indicated.

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Tuberculin Skin Testing

Tuberculin Skin Testing Programs for School Children—an Epidemiologic Method

CHARLES E. LEWIS, M.D., *Kansas City**

THE OBJECTIVES OF a tuberculosis control program are to detect all cases of the disease, find the sources of reservoirs of the disease, and insure adequate treatment for those who have tuberculosis. The skin test for tuberculosis remains an important cornerstone in any tuberculosis case finding program.

The occurrence of a positive skin test does not, of course, mean the presence of active tuberculosis. In fact, this is rarely the case. The presence of a positive skin test indicates contact with the disease. Since the number of adults with positive skin tests is high (10-40 per cent) and the number of contacts which they have had are many, a positive skin test in an adult is usually of little significance. However, because of the infrequency of positive skin tests in children under 10 years of age and the limited number of close contacts of small children, a positive skin test may be used as a case finding method to discover the actual source of exposure in these patients.

In order to demonstrate the practical use of skin testing for children entering a school system such a program was initiated in a county school system in Texas. This county was selected because of the relatively high incidence of tuberculosis among its Negro population. In addition, the county does not have a State approved City-County Health Department and therefore such programs must be carried out by voluntary health agencies or existing community health resources. With this in mind the county Tuberculosis Association was approached and agreed to sponsor a skin testing program for all first grade school children in the county school system. It was decided that participation in this program should be on a voluntary basis since the axiom that "education is the only foundation for public health legislation" still obtains.

Methods

In May, 1960, the superintendent of the county school system as well as the individual school superintendents were acquainted with the project. At the same time PTA groups were asked to make a place

for representatives of the TB Association on their September program. Doctors representing the TB Association spoke to the PTA groups explaining the nature and importance of the program. Slips requesting permission to skin testing the child were sent home with the students. Students were tested by a nurse of the TB Association with the help of city and county school nurses.

Skin tests were accomplished using the Heaf technique. Arms were wiped with a sponge moistened with acetone, a PPD solution (2 milligrams per milliliter) was applied with a toothpick to the forearm and the Heaf gun or a modification of this instrument was used (*Figure 1*). Tests were read at seven days.



Figure 1. Modified Heaf gun. Upon pulling the trigger six small stylets penetrate the head of the cartridge and inoculate the PPD solution approximately 1 millimeter into the epidermis. The cartridges are changed between patients.

* Chief of the Section of Public Health and Preventive Medicine, University of Kansas School of Medicine.

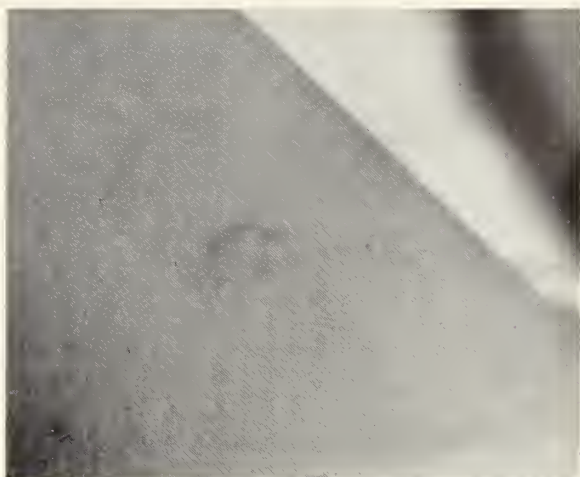


Figure 2. Positive skin test (2 plus) seen at seven days after test.

A positive test was indicated by the presence of four indurated points, with or without redness. The presence of six indurated points constitutes a 2 plus reaction (Figure 2), while if the area of induration is

severe enough to form a circle the test is graded as 3 plus. A 4 plus reaction is recorded when the center of the ring is involved in erythema and induration.

Results

Table 1 demonstrates the results of all skin tests of first grade pupils. Twenty-eight and five-tenths per cent of the first grade population in county schools were Negroes. An over-all rate of 8.3 per cent positive reactors was found in the Negro students. Nine out of 1,132 white students or 0.80 per cent of those tested were positive. The over-all cooperation in all schools was 80.4 per cent and the total rate of positive reactors was 2.6 per cent. Table 2 summarizes the results of testing of a small percentage of teachers in the schools and most of the older student cafeteria workers in the school system.

Discussion

In other studies the Heaf test has been shown to be of equal reliability as intradermal tests using PPD or OT. Experience in testing first graders with this method has demonstrated an ease of skin testing

TABLE 1
SUMMARY OF RESULTS

Negro						
	Total Students	Tested	No. Not Followed	No. Positive	% Co-operation	% Positive
Town A	288	178	25	27	70.1	15.2
Town B	85	65	2	2	76.5	3.17
Town C	80	78	0	1	97.5	1.2
County	88	74	8	0	84.1	0
	541	395	35	30		

Total % Positive 8.33

White						
	Total Students	Tested	No. Not Followed	No. Positive	% Co-operation	% Positive
Town A	472	388	11	3	82.2	0.79
Town B	229	181	0	0	79.0	0
Town C	227	178	0	0	78.4	0
County	430	385	6	6	89.5	1.58
	1,358	1,132	17	9		

Total % Positive 0.80

	All Students	Tested	No. Not Followed	No. Positive	% Co-operation	% Positive
All Schools						
Grand Totals	1,899	1,527	52	39	80.4	2.6

large numbers of young children with a minimum of objections or disturbances. The over-all percentage of cooperation was good (80.4 per cent). The value of the project would, however, have been greater if 90-95 per cent of the students had been tested.

The results of this survey dramatically indicate the low incidence of positive skin tests among white children and the rather high percentage of Negro children with evidence of exposure to tuberculosis. This is particularly true with respect to the Negro

demological significance of these data is obvious. There should be increased efforts to secure better co-operation in a complete follow-up of positive reactors, especially among the Negro school children. Information obtained in a study such as this suggests that the unidentified cases of active tuberculosis among Negroes in the area studied is higher than had been previously assumed.

The application of such skin testing methods to school children in any city or county school system is not difficult. In order to insure its success there need only be persons interested in the performance of such a study, adequate dissemination of information regarding the importance of the study and the means by which it will be carried out, and the cooperation of regional school and public health nurses.

Summary and Recommendations

Fifteen hundred and twenty-seven of 1,899 first grade students in a Texas county school system received tuberculin skin tests using the Heaf technique. Eight and three-tenths per cent of Negro students and 0.8 per cent of white students showed a positive reaction.

One hundred and ninety-nine teachers and 168 student cafeteria workers were also tested. The rate of positive reactors was appropriately increased in these older students and among the adult teachers.

This study revealed a striking increase in the rate of positive reactors among Negro first grade students.

The performance of a similar study in a city or county school system is relatively simple and provides a wealth of epidemiologic information concerning sources of active tuberculosis in the community.

TABLE 2

SUMMARY OF SKIN TESTS ON CAFETERIA WORKERS AND TEACHERS

	No. Tested	Positive	% Positive
Negro Teachers	64	33	51.6
White Teachers	135	44	32.6
Negro Cafeteria Workers	50	16	32
White Cafeteria Workers	118	22	18.6

children attending town "A" schools where the rate was exceedingly high—15.3 per cent. This figure leaves room for speculation as to the positive factors—geographical, cultural, or socio-economic, which are important in the production of these results.

The differences in the incidence of positive skin tests between Negro and white teachers and cafeteria workers is further indication of the generalized increased exposure of Negroes to tuberculosis. The epi-

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Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.



Post-Prandial Epigastric Pain and Weight Loss

Case Presentation

This was the first admission for a 64-year-old white farmer who complained of having severe pain in his abdomen for five months. During the past year he had had slight epigastric pain, especially after large meals. This had become more severe during the five months before admission. The pain occurred 15 to 60 minutes after meals. It was constant and dull, and lasted from three to five hours, occasionally radiating to the back. It did not awaken him at night. For three months before admission he had been anorexic, and he was reluctant to eat because of the post-prandial pain and feeling of fullness and heaviness. During that time he had lost 35 pounds. Neither antacids nor a bland diet gave him any significant relief. He complained of intermittent claudication in the calves of his legs during the past year, and for the past few months his right leg felt cold.

The patient was a chronically ill appearing man who looked older than his stated age. His blood pressure was 130/90; pulse rate 100 per minute; temperature, 97.8 degrees; weight, 89 pounds, height 68 inches. He had generalized weakness and marked loss of subcutaneous fat. The heart and lungs were normal. The abdomen had a hollow appearance because of wasting. The abdominal aorta was easily palpable. The right femoral pulse and left popliteal pulse were absent. Both legs were cool to the touch.

The specific gravity of the urine was 1.016 with pH of 5.5; there were 1-3 pus and red cells per high power field and a trace of albumin. The hemoglobin was 15 grams. The white count was 12,500 with 71 per cent polymorphonuclears (69 per cent filamented and 2 per cent non-filamented), 23 per cent lympho-

cytes, 1 per cent eosinophiles, 1 per cent basophiles, 4 per cent monocytes. The VDRL was non-reactive. The BUN was 24 mg. per cent; serum albumin, 4.38; serum globulin, 2.73. A glucose tolerance test showed fasting 75 mg. per cent; 1 hour, 116; 2 hour, 84; 3 hour, 114; and 4 hour, 115 mg. per cent. A gastric analysis showed free acid 16 degrees and total acid 28 degrees in the fasting specimen. After stimulation with betazole hydrochloride the free acid was 66 degrees and the total acid was 76 degrees. Serum amylase was 83 units; lucine aminopeptidase, 148; lipase, 0.5 and transaminase, 23 GOT units. The sedimentation rate was 12 mm. in one hour. The secretin test fasting volume was 30 ml. with a bicarbonate of 12.8 mEq/L. After stimulation the maximum volume was 88 ml. with 70.3 mEq/L. Stool benzedine was 3 plus. Superficial gastritis was diagnosed by gastroscopic examination.

The patient continued to have post-prandial pain. At various times he obtained some relief by sitting upright or bending slightly forward, and hot water bottle also gave mild relief. Two weeks after admission a laparotomy was done, and his postoperative course was satisfactory. During the first postoperative week the post-prandial pain was relieved, but then it recurred with increased severity. Narcotics were necessary. Nitroglycerin occasionally gave mild relief.

After a month of hospitalization he "blacked out" at 5:00 p.m. while he was in the bathroom, and he had to be carried back to bed. At that time he appeared somewhat cyanotic to the nurse. His pulse rate was 110. Forty minutes later a doctor found him sitting on the side of the bed, and a short while later he suddenly fell backwards. Heart tones could not be heard, and his blood pressure was not obtainable. A patient in the next bed said that he had had an episode of severe abdominal pain just before the doctor's arrival and just before he fell over backwards.

Dr. Mahlon Delp (moderator): Are there any questions?

Edited by Jesse D. Rising, M.D. and Mahlon Delp, M.D. from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

Donald Janes (fourth year medical student):* Were mental changes ever noted in the patient?

Dr. Eugene Malone (resident in medicine): No.

Charles Jones (student): Had he ever had any steatorrhea?

Dr. Malone: No.

Lloyd Hollinger (student): Were any masses palpable in the abdomen?

Dr. Malone: The aorta was easily palpable. At one time one observer reported a hard area just to the left of the aorta in the area of the umbilicus.

Tom Davis (student): Was there any particular tenderness on palpating the aorta?

Dr. Malone: No, there was not.

Hugh Greer (student): Was the liver edge ever palpated?

Dr. Malone: Yes.

Mr. Janes: Did the patient have a history of angina?

Dr. Malone: Not that I recall.

Mr. Janes: Was there any history of previous myocardial infarction?

Dr. Malone: No.

Clement Chun-Ming (student): Was a liver function study done?

Dr. Delp: No.

Mr. Janes: Did he have a history of alcohol intake at any time?

Dr. Delp: No, he did not.

Mr. Janes: Had he ever been jaundiced?

Dr. Malone: Not to our knowledge.

Mr. Hollinger: Were there any subsequent blood counts?

Dr. Malone: Yes, but they were essentially unchanged.

Mr. Greer: Did the pain during his terminal episode occur in the same area as the pain he had during his hospital course?

Dr. Malone: We do not know.

Mr. Janes: Was he cyanotic during the last forty minutes?

Dr. Delp: A nurse's note stated that he was cyanotic when he got back to bed, but we do not know how long he remained cyanotic.

Mr. Janes: Was his pulse irregular during that time?

Dr. Delp: He had a tachycardia of 110, but there was no irregularity.

Mr. Hollinger: What was the report of the cytological examination on the duodenal aspirate?

Dr. Delp: It was normal.

Mr. Greer: What was his usual weight?

Dr. Malone: It was about 150 pounds.

Mr. Janes: Did he have any terminal vomiting?

Dr. Delp: No, he did not.

Mr. Janes: Was there any skin discoloration on the abdomen?

Dr. Malone: No.

Dr. Delp: Thank you, Dr. Malone. We will now have the electrocardiograms.

Electrocardiograms

Mr. Davis: The first tracing, taken on the day of admission, shows a rate of approximately 100 with regular sinus rhythm interrupted by one premature ventricular complex (*Figure 1*). The P waves are peaked and slightly large. The P-R interval is normal, and the QRS complexes are essentially normal. The Q-T interval is isoelectric, and the T waves are not remarkable. I interpret this tracing as possible atrial overload.

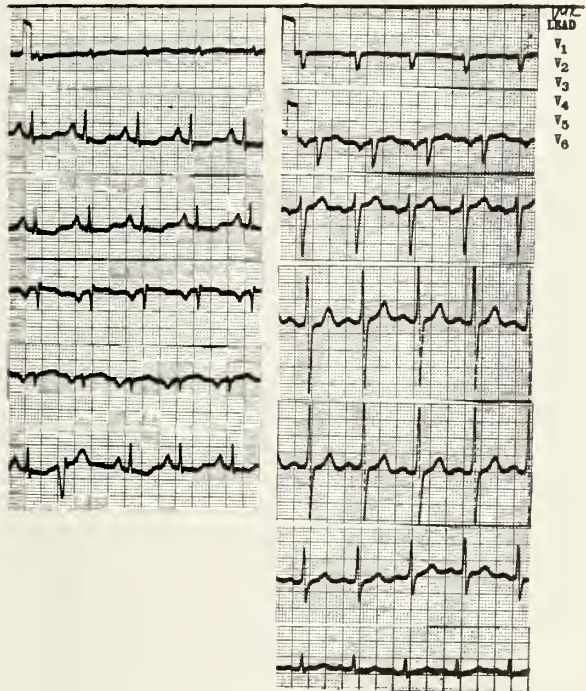


Figure 1. Admission electrocardiogram.

The next tracing was taken after the patient's surgery and approximately three days before death. The QRS vector is not remarkably changed; it is still slightly vertical, and the rate is approximately 80 with the same sinus rhythm. There are more premature contractions here than in the previous tracing. The P waves are still somewhat peaked but are not so large as those in the previous tracing. They are approximately at the upper limits of normal. Again,

* Although a student at the time of this conference in April, 1960, he, like the others referred to as students, received the M.D. degree in June, 1960.

the P-R interval is normal as is the QRS complex. The Q-T interval and the T wave are not remarkable. The evidence of atrial overload in the first tracing is not seen here, and I have no interpretation for this.

Dr. Delp: Thank you, Mr. Davis. May we see the x-rays now, please?

X-rays

Mr. Jones: Four x-ray films were taken shortly after admission. A P-A of the chest shows slight elongation of the chest. The lungs have a burned-out appearance, and, together with the slightly flattened diaphragms, are suggestive but not diagnostic of emphysema. The heart is normal in size, and the aortic knob shows some calcification.

A gallbladder visualization (*Figure 2*) shows normal functioning of the gallbladder and no stones.

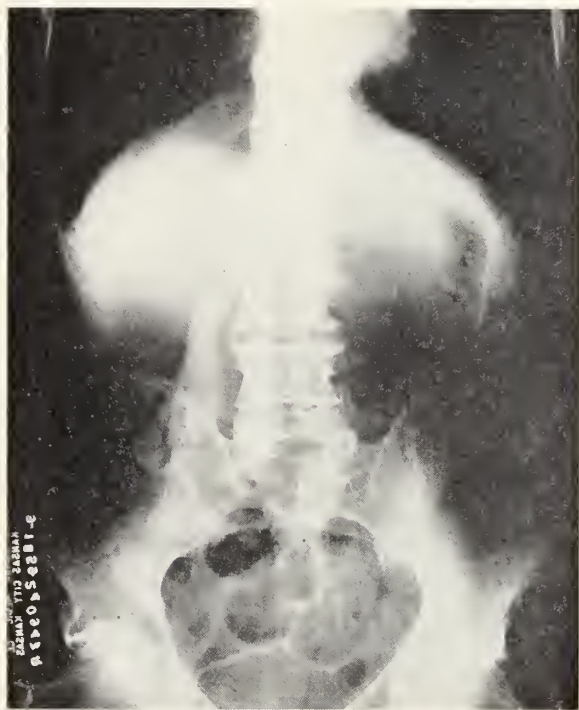


Figure 2. Gallbladder visualization.

There is marked lipping of the vertebrae. Some calcified vessels are seen in the pelvic area. An upper gastrointestinal series taken one and one-half hours after the barium swallow shows a large amount of barium still in the stomach. The duodenal loop and the small intestine are poorly visualized. I interpret this as a normal film.

Dr. Delp: Dr. Agnew, may we have your comments?

Dr. Colvin Agnew (radiologist): Films made a day or two before when the patient was in acute

pain show the stomach to be somewhat larger than is seen here. A film made at 12 hours showed little patches of the barium in the small bowel and an atonic stomach with the residual barium still in the stomach. There was, however, no obstruction.

Dr. Delp: Thank you. Mr. Hollinger will now give us his differential diagnosis and summary.

Differential Diagnosis

Mr. Hollinger: My diagnosis is based on post-prandial epigastric pain associated with weight loss and peripheral arterial insufficiency in a 64-year-old man.

Entities such as gallbladder disease, hiatal hernia, retroperitoneal tumors, carcinoma of the stomach, chronic pancreatitis and peptic ulcer may be present with vague epigastric distress and some weight loss. These entities are mentioned only for completeness, and are ruled out because of the lack of a typical history, physical findings and laboratory values.

Carcinoma of the pancreas must be considered in any patient who has epigastric pain and severe weight loss. In the absence of jaundice the body or tail of the pancreas is the most likely site of origin. Our patient had increasingly severe pain for about one year, and during the last few months of his illness it had become constant and had radiated to his back. The pain was relieved by sitting upright and bending forward, but no relief was obtained by antacids or bland diet. Later a feeling of epigastric heaviness and fullness was associated with the pain. All of these symptoms are compatible with carcinoma of the pancreas. One contradictory feature is the post-prandial occurrence of the pain. Severe weight loss is a constant feature and is often the presenting symptom of carcinoma of the pancreas. Our patient had lost 35 pounds in three months. There was evidence of peripheral arterial occlusion. Venous thrombosis in that disease is generally appreciated, but it has also been reported that arterial thrombosis has been found in 26 of 157 cases of pancreatic carcinoma. Thrombotic phenomena are more common in patients with lesions of the body and tail than in those who have carcinoma of the head of the pancreas. Militating against that diagnosis in our case is the absence of abdominal tenderness which is found in about 61 per cent of these cases. A palpable mass is often present, and an enlarged liver is found in about 70 per cent. The duration of the disease and the absence of gastrointestinal symptoms, anemia and edema tend to discredit that diagnosis in our patient.

Emotional and behavioral disturbances are not uncommon in patients with carcinoma of the pancreas especially when there is involvement of the body and tail of the gland. In considering that diagnosis I was

most impressed by three negative findings. It was reported that in 92 per cent of patients with carcinoma of the pancreas there was a serum protein of less than 6 gm. per cent. In our patient the protein was 7.11 with a normal albumin:globulin ratio.

The serum leucine aminopeptidase (LAP) has been a valuable laboratory determination in the diagnosis of carcinoma of the pancreas because in 20 out of 24 cases the LAP has been significantly elevated. In our patient it was within the normal range. Furthermore, a sedimentation rate of 12 mm. per hour is not consistent with such a destructive lesion. Negative results in other laboratory studies contribute little to the diagnosis.

The term "intermittent mesenteric ischemia" has been proposed for a syndrome exhibiting evidence of peripheral arteriosclerosis and periodic abdominal pain resulting from concomitant mesenteric vascular involvement.

Pal's crisis, intestinal claudication and abdominal angina are other synonyms that have been used to label this syndrome. Classical findings include persistent and consistent cramping abdominal pain that may extend to the back and occurs regularly within minutes after eating. It is alleviated to some extent by lying in some special position on the abdomen or side or by leaning forward in a sitting position. At first the pain is minimal but steadily increases in severity. Severe weight loss is common, and may be explained on the basis of a fear of eating because of the associated pain. In addition the absorptive function of the intestine depends upon its blood supply. Metabolic studies on a series of patients in Massachusetts General Hospital showed a considerable defect in the absorption of fat, sugars, and vitamin B₁₂. Patients may also complain of angina pectoris and intermittent claudication of the extremities. Physical examination, even in the presence of pain, is unrevealing except for evidence of weight loss and occasional mild abdominal distention. Laboratory tests and x-rays add little in the diagnosis except in a negative way, although positive occult blood may occur in the stool without any known cause. Electrocardiograms may only show evidence of cardiac ischemia.

In the same way that angina pectoris is a manifestation of intermittent myocardial ischemia, so this syndrome of abdominal pain is a manifestation of intermittent intestinal ischemia. The pain is the result of hypoxia of the intestinal wall produced by the increased metabolic demands of digestion and assimilation after meals. Our patient obtained relief from his pain by leaning forward in a sitting position which resulted in improved circulation when tension and drag on the fan-like suspension of the bowel by the mesentery was released.

The terminal episode may be explained by one of three complications: myocardial infarction, cerebral thrombosis or complete occlusion of the involved mesenteric artery with massive infarction. The majority of these patients die of the latter cause, and death is often preceded by a laparotomy.

In summary, I believe our patient had intermittent mesenteric ischemia as a result of generalized arteriosclerosis. He died in shock secondary to acute occlusion of the mesenteric artery, but myocardial infarction cannot be ruled out. Mesenteric ischemia is seldom diagnosed antemortem, and the early diagnosis of that entity deserves more emphasis because arteriosclerosis has become a major problem in our aging, neurotic, psychotic, sclerotic society.

Clinical Discussion

Dr. Delp: Thank you. May we have your diagnosis, please, Mr. Greer?

Mr. Greer: Abdominal angina is my first diagnosis; carcinoma of the tail or body of the pancreas is my second diagnosis.

Dr. Delp: Do you believe there are any useful laboratory values here to help in establishing that diagnosis?

Mr. Greer: There are no useful positive laboratory findings. Three laboratory findings have been mentioned that were significant in ruling out carcinoma of the pancreas.

Dr. Delp: How do you explain this glucose tolerance curve?

Mr. Greer: The glucose tolerance curve is slightly elevated, and could be a liver curve. The patient could have had a fatty liver because of his wasting disease. I believe that the value of 84 is probably an error.

Dr. Delp: How do you explain the LAP values, Mr. Jones?

Mr. Jones: The values are normal here but they usually are higher in the carcinoma of the pancreas, sometimes as high as 500.

Dr. Delp: Mr. Davis, do you have any ideas about the reliability of this test?

Mr. Davis: It depends on the clinical picture. If one is faced with the differential diagnosis between two entities, as we are here today, then it is a valuable tool.

Dr. Delp: Mr. Jones, what clinical situations do you believe should give the highest LAP values?

Mr. Jones: Pregnancy gives one of the highest. Complete biliary atresia also gives high values.

Dr. Delp: The history states that at various times the patient obtained relief by sitting upright and bending slightly forward. What is the significance of that, Mr. Jones?

Mr. Janes: When the patient sits up the tension on the small bowel mesentery is decreased, and in that fashion there is relief from pain.

Dr. Delp: Mr. Chun-Ming, what is your opinion?

Mr. Chun-Ming: The relief of pain in the sitting position is probably more consistent with carcinoma of the pancreas. By assuming a sitting position the weight of the tumor together with the infiltration of the tumor in the celiac plexus supposedly is lessened, and the severity of the pain is diminished.

Dr. Delp: Mr. Greer, why was the patient operated upon?

Mr. Greer: In terms of our first diagnosis he probably was to have a superior mesenteric artery endarterectomy in an effort to provide him with a bigger lumen in his superior mesenteric artery.

Dr. Delp: Mr. Janes?

Mr. Janes: I believe it was to rule out carcinoma of the pancreas.

Dr. Delp: Mr. Davis?

Mr. Davis: Most of these entities are notorious for not being well diagnosed without laparotomy.

Dr. Delp: What do you believe was in the mind of the individuals who recommended and carried out the surgery, Mr. Hollinger?

Mr. Hollinger: In terms of the diagnosis these patients can be helped either by an endarterectomy or anastomoses between the aorta and the superior mesenteric artery, if that is where the lesion is. If the diagnosis is unknown an exploratory laparotomy would be done.

Dr. Delp: Dr. Brown, what is your analysis of this situation?

Dr. Robert Brown (internist): I have no objection to the diagnosis offered by the students. I believe a lateral film of the upper gastrointestinal tract would have been helpful in the consideration of carcinoma of the pancreas because anterior displacement of the stomach is sometimes helpful. The malabsorption is an interesting factor here, and brings to mind several other possibilities which have been briefly mentioned. Lymphoma can involve the mesentery of the bowel to produce a clinical picture similar to that seen here, but in our patient's case we have no other reason to suspect it. Metastatic carcinoma of the mesentery produces a picture similar to this, but the most plausible explanation is probably carcinoma of the pancreas. The patient had pulmonary emphysema as interpreted from the x-ray and from the electrocardiogram which could explain his fairly good hemoglobin which one would otherwise expect to be somewhat diminished because of a long-standing chronic illness. The terminal event in my opinion was pulmonary embolus.

Dr. Delp: Dr. Weber, would you be able to dismiss carcinoma of the pancreas so readily?

Dr. Weber (internist): It would be difficult to dismiss it even in the face of the negative laboratory evidence. The glucose tolerance test, however, probably upsets me more than the LAP or any other single test. In our experience the glucose tolerance test has been more indicative of dysfunction of the pancreas than any other test. During the past two years we have been seen about 15 to 20 patients with carcinoma of the pancreas, and the two-hour blood sugar on the glucose tolerance test was abnormal in almost every one.

Dr. Delp: That is certainly true. I also accept the suggestion made by the students that probably the best way to make the diagnosis is by exploratory laparotomy, and even then it is occasionally missed. Dr. Manning, may we have your comments about the LAP values?

Dr. Manning (internist): In general this particular enzyme should be interpreted much the same way that alkaline phosphatase values are interpreted. They have no specific value in carcinoma of the pancreas *per se*. The exceptions in the interpretation are that this enzyme is greatly elevated in pregnancy, and it is not altered by bone metastases as alkaline phosphatase values might be. The highest levels, other than in pregnancy, are seen in common duct obstruction from any cause. We have never seen a case in which it was known that the patient had common duct obstruction from stones, stricture or tumors that did not have LAP activity over 350 units. We have seen four carcinomas of the pancreas of which two were actually in the head of the pancreas with normal LAP values.

Dr. Weber: A plain lateral film of the abdomen perhaps could have given some indication of the degree of the atherosclerosis of the aorta. It was seen in the pelvic vessels and in the arch of the aorta, and I believe that that film might have given us more information about abdominal calcification than any other film.

Dr. Delp: Thank you. May we have the pathologist's report now, please?

Pathological Report

Dr. Bernard Klionsky (pathologist): Most of the autopsy findings have been predicted. The patient did have generalized arteriosclerosis. Thrombosis in the right common iliac artery correlates with claudication in the left leg. He had stenosis and an organizing thrombus in the superior mesenteric artery. We believe, as did the students, that his clinical manifestations were predominantly those of mesenteric angina. He also had a generalized arteriosclerosis of the coronary vessels with a recanalized thrombus in the right coronary and some old fibrosis of the

left ventricle probably indicating small healed myocardial infarcts.

The heart was not enlarged, and weighed only 300 grams. There was no evidence of any antecedent hypertension.

The brain revealed a moderate degree of atrophy and a few senile plaques.

The major finding can be visualized in a slide (*Figure 3*) which is a histologic section of the superior mesenteric artery. It reveals rather marked stenosis and a relatively fresh thrombus with intact red blood cells. The adjacent aorta showed marked atherosclerosis and thickening. The celiac axis was also markedly stenotic at its orifice, and had only a 1 to 2 mm. lumen. The celiac artery beyond the os was patent, as was the superior mesenteric artery beyond the first centimeter.

In a few areas recanalized thromboses were found in the distal branches of the superior mesenteric artery (*Figure 4*). Although the bowel did not show any evidence of infarction, there was minimal edema of the submucosa and rare infiltrates of polymorphonuclear leukocytes.

Having anticipated that all of the morphologic

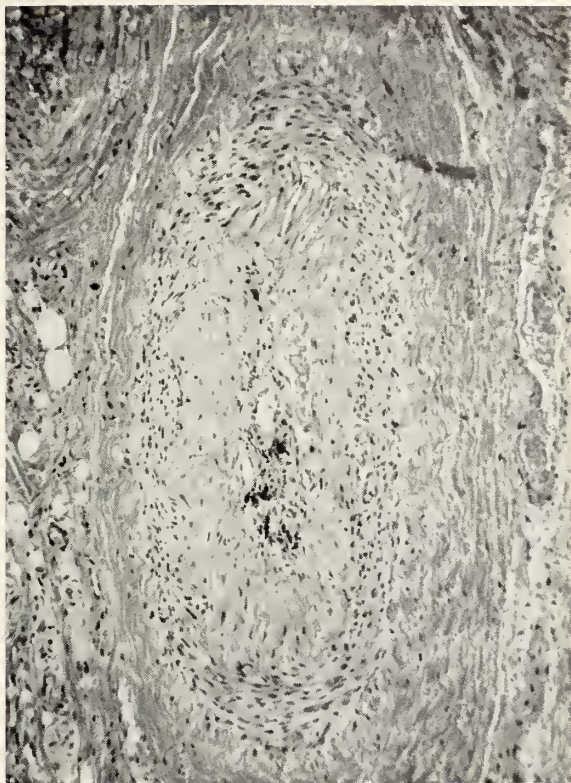


Figure 4. A distal branch of the superior mesenteric artery contains a recanalized thrombus. Hematoxylin and eosin. Magnification $\times 115$.

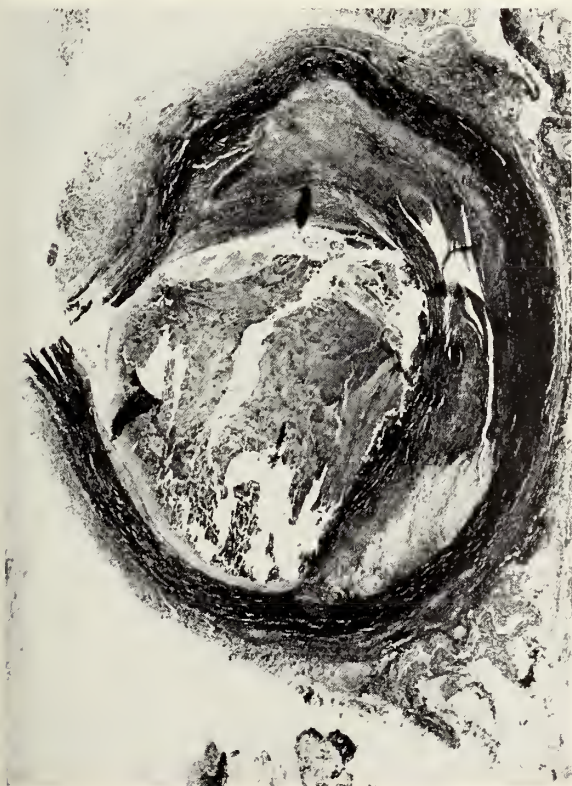


Figure 3. An elastic tissue stain of the superior mesenteric artery shows an eccentric atherosclerotic plaque and thrombus which fills the lumen. VVG. Magnification $\times 115$.

findings would be predicted by the students, I thought it might be interesting and instructive to point out the parallelism between mesenteric angina and angina pectoris. Both characterized by pain. The actual mechanism of pain is unknown although it is probably related to the accumulation of lactic acid or other metabolites of anaerobic metabolism. Pain may be considered as the protest of ischemic muscle against a blood supply that is inadequate relative to the amount of work that has to be done. As with angina pectoris, the pain of mesenteric insufficiency may be present with effort or at rest. Initially pain may be present only with the digestive effort following meals; with more severe vascular involvement, pain may actually occur at rest. Ultimately total vascular insufficiency may lead to infarction in either situation. The diversity in the clinical and pathologic findings would depend entirely upon a number of variables which almost exactly parallel those found in the heart. The rapidity with which the obstruction develops is of prime importance. An acute sudden occlusion of a vessel may give rise to fatal infarct. This is most likely to be caused by a sudden thrombosis or an embolus. A rather slow occlusion may permit collateral circulation to develop. Occasionally one

can see two or three coronary arteries occluded without evidence of an infarct. Similarly there may be actual occlusion of the celiac axis and of the superior mesenteric artery as well as significant sclerosis of the inferior mesenteric artery without infarction of the bowel.

The general condition of the patient is of major importance. The existence of anemia, hypoglycemia, cardiac arrhythmia, shock, or severe venous congestion may serve to augment the ischemia produced by a narrowed artery. Angina or infarction may be initiated by these factors which contribute to tissue malnutrition. An increased incidence of mesenteric angina has been reported with the venous congestion of cardiac failure or portal hypertension.

Certain parallels exist in the alteration of cardiac and bowel physiology. The organ involved may become functionally insufficient. Impaired motility and delayed emptying and vomiting time may reflect insufficiency of the smooth muscle. Insufficiency of the mucosa may be manifest with malabsorption syndrome and diarrhea. Rarely, stricture of the bowel and intestinal obstruction have resulted from scarring of focal areas of ischemic necrosis.

An appealing, though speculative, parallel is that of congestive heart failure which may in some instances have an iatrogenic component with the overload administered by vein (heart failure) or by gastric tube (intestinal failure). This patient refused to eat presumably because of pain and gastric distension. He was fed by tube and at the time of autopsy we found 3,000 ml. of creamy colored material in the stomach, and aspirated gastric contents were found, particularly in the upper lobes of the lung.

With greater recognition of mesenteric angina, therapy is improving. Anticoagulation, diet control and surgery are the main forms of treatment. In this patient, at the time of laparotomy, the surgeon noted diminished pulsation of the superior mesenteric artery. He considered thromboendarterectomy, but decided that the lesion was surgically unapproachable. Surgeons are perfecting operative procedures for control of this lesion. There are certain anatomical principles which may help to guide them. The occlusions, as demonstrated in surgical and autopsy material, are mainly present in the first 2 cm. of the superior mesenteric artery. It is believed by some that the syndrome does not exist if only one of the three major arteries supplying the intestine is involved. Usually there is some combination of lesions involving the celiac, superior mesenteric and inferior mesenteric arteries. Patients have been helped by thromboendarterectomy of one or more of these vessels.

Mesenteric angina is being recognized with greater frequency. Our understanding of its pathogenesis, its symptomatology and its therapy may benefit from the

parallelisms which can be drawn with ischemic vascular disease in other organs.

Dr. Delp: Thank you, Dr. Klionsky. The diagnosis of abdominal angina has been made for a long time, but the diagnosis has not been taken seriously by most clinicians. I believe progress has been made by surgeons, and vascular surgery elsewhere in the body has alerted us to listen to the carotids, to palpate and examine them closely. It has made it possible to set up certain clinical and physical diagnostic criteria whereby these can be recognized without the extensive catheterization and x-ray visualization that confirms it. We have the same attitude now about various diseases of the aorta and some of its branches. We palpate the femorals rather closely; we palpate all of the peripheral vessels with considerably more attention than we did fifteen years ago. I believe that the presentation of such cases as this reaffirms some of the findings, doubly documenting them as they have been here, both with laparotomy and with the autopsy findings, and we should keep this syndrome in mind. It is true that it is similar in some respects to the syndrome of carcinoma of the pancreas, but there is more than a subtle difference that exists with regard to the pain. The unique characteristic and pathognomonic feature is the absence of pain when there is no food in the gastrointestinal tract. At such times the patients remain rather comfortable. If this is emphasized when the history is taken, and there is evidence of arteriosclerosis elsewhere that makes this a probability, then it can be confirmed by radiographic visualization. Little good is done if we resort to surgery and find such extensive thromboses as were present in our patient. The problem must be recognized sooner, and we must hope that something that decreases intravascular coagulation might hold something for the future of these patients.

Pathological Anatomical Diagnosis

Generalized arteriosclerosis, severe, with thrombosis of right common iliac artery.

Stenosis and organizing thrombosis of superior mesenteric artery and marked stenosis of os of iliac artery.

Generalized coronary artery atherosclerosis with organized recanalized thrombosis of right coronary artery.

Aspiration of gastric contents, upper lobes, bilateral.

Healing midline vertical surgical incision in abdomen, 21 cm. in length.

References

- Editorial: Intestinal Angina, *Lancet*, 1:1211, 1958.
Johnson, C. C. and Baggenstoss, A. H.: Mesenteric vas-
(Continued on page 135)

The President's Message

DEAR DOCTOR:

I again come to a time when it becomes difficult to write the President's page as this brings forth memories in serving the unexpired term of our recently deceased president, Dr. Glover.

This year has presented many new problems which will be continued during the ensuing year. It has been my pleasure to have attended several District meetings which have given me the opportunity to present some of the important projects to be decided by the House of Delegates.

I would like to present in this President's page an extremely important problem and will try to present the facts. As you know, last year the House of Delegates adopted the Relative Value Scale for services to be used as a basis for fees by Blue Shield. Since the adoption of this formula, research was conducted on a national basis for fees to be used in the national plan, known as P.S.I., and this plan was adopted.

A national plan has been developed for the acceptance of Blue Shield on a national basis which, of course, would include employees of companies which operate in more than one state.

Fees under the national plan would be locally established by an agreed upon conversion factor for each of three different service contracts based on income levels of \$4,000, \$6,000 and \$7,500. The P.S.I. appears to be required for national accounts and if the Relative Value Scale is used for local participants confusion and complications ensue.

The House of Delegates will have to decide whether the Relative Value Scale as adopted by the House of Delegates last year should be continued or replaced by the P.S.I. plan which would entitle Kansas Blue Shield to participate on a national basis.

In closing I would like to thank all committees, staff and councilors for their wonderful cooperation.



A stylized, handwritten signature in black ink. The signature appears to read "S. A. Rightman" with a large, decorative flourish at the beginning.

President



The MD's Responsibility to His State Meeting

EDITORS'S NOTE: This editorial was prepared and submitted by the Medical Society Executives Association.

Peculiar things are happening in "the house of medicine" today. Bureaucrats in Washington are using IBM techniques to determine what John Jones, M.D. in Spotted Horse can charge for every service he renders patients served, where government funds are wholly or partially employed. Hospitals in many areas are assuming the role of community physician and creating a public image that the fount of medical knowledge and authority rests on Hill-Burton foundations rather than in the office of the individual family physician. And with this ominous change in the structure of medical practice comes an equal and disturbing decline in the role of the county society and the state medical meeting in the important area of postgraduate medical education.

Why is this so, and need it continue to a point where the county society and the state medical meeting join the dodo and the carrier pigeon in oblivion?

At the turn of the century the county medical society was the "doctors' fraternity," and the annual state meeting was an occasion eagerly anticipated as a source of professional knowledge and an opportunity to discuss cases and professional problems with former teachers and colleagues in other cities. Those were the days when professional exchange of experience and avid attendance at lectures provided the best avenue for continued medical education. Medical movies were rarely available, TV wasn't even imagined outside of a few imaginative science writers of the Jules Verne type, and even access to literature was generally confined to the larger communities and those few high and mighty "giants" of the profession who were specialists in the art of surgery.

What a change today! The busy practitioner of 1962 is bombarded with literature; he is swamped with elaborate brochures on a multiplicity of medications and professional aids; he is interrupted in the care of patients by earnest and persistent detail

men; his hospital staff demands his presence at frequent meetings; his specialty group or GP unit seeks his attendance at scientific meetings (with bait of credit, or threat of expulsion!) . . . in short, the physician of today is either a nomad from his practice, or he throws up his hands and eliminates all meetings other than three or four each year.

In such a situation many state medical meetings are finding themselves among the "also rans." They can provide little of the glamour or overwhelming program offerings of an A.M.A. meeting. Nor can they successfully compete with the social pull of the resort conferences (with a chance for a bit of gambling and night-clubbing within the prescribed rules of the Internal Revenue Department!).

And yet, a state medical meeting has something of *special* value to the practitioner which is worth preserving. But it cannot survive if an increasing number of physicians by-pass it and restrict their attendance to regional or national meetings of their specialty or area of general practice.

A state meeting . . . YOUR state meeting . . . is the finest "grass roots" medical meeting which can be developed. It's big enough to provide a stimulating program with out-of-state speakers, and to encourage the development and presentation of good scientific exhibits from local hospital staffs or clinic groups. At the same time it's small enough to provide renewed fellowship with former classmates and faculty members to a degree which is lacking in any national or even regional conference.

Why then, is the average state meeting suffering a severe case of attendance malnutrition? In some instances poor program planning may be the answer. Often there is a lack of imagination in providing new modes of presentation. Panels, demonstrations, movies, TV, "wet clinics" . . . all are an important part of a modern-day medical convention, and the program committee which fails to utilize these teaching devices is issuing a blanket invitation to stay away from the meeting itself.

Even the technical exhibits at a well-run medical meeting have educational benefits to be considered. True, a certain proportion of physicians regard the technical exhibits as "commercialization" of the scientific program, and hesitate to taint themselves by stopping at any of the booths. However, there are many more physicians from smaller communities or in rural practice who welcome the opportunity to see what new drugs and appliances are being offered, without the pressure of a full waiting room of patients.

No medical meeting exhibit should be continued solely on the basis of financial support of the scientific program itself. No one should ask the physician to "sell his soul," just to support a commercial exhibit. The day of the "hard sell" among exhibitors at medical meetings is a thing of the past. A few companies still emphasize direct sales at medical conferences, and their representatives are a bit on the over-eager side. But most of the ethical houses conduct their physician contacts in keeping with the professional standards of those in attendance.

The educational aspects of the modern-day medical exhibit should not be overlooked or derided by the purist MD who scornfully brands all displays as "technical prostitution." He is possibly unaware of the fact that most of the scientific exhibits he admires and studies are largely supported by funds from the commercial houses. He accepts the lectures and demonstrations on the scientific program itself with little recognition that without exhibit support he would be asked to pay a registration fee of \$25 to \$50.

Those who view medical meetings, from the hospital staff level right up to the summer meeting of the A.M.A., are concerned that in some areas physicians are failing to appreciate the importance and unique qualities of their state meeting. By their failure to actively support their meeting on a state level they are threatening the demise of a meeting which has much to offer in terms of close professional fellowship and keeping the quality of medical practice in the immediate area alert to new developments as they relate to individual practice.

The public is prone to criticize the medical profession for its alleged major concern with the financial returns of their practice. Attendance at medical meetings represents a loss of income which is often overlooked by patients. It is important that annually your patients either read this legend on your office door: "To My Patients: I Am Attending My State Medical Meeting so I Can Better Serve You. Please call Doctor _____ in My Absence," or your office girl should be asked to explain your absence in a similar manner.

Your state meeting is worthy of your support . . . and it can only remain a vital factor in the life of your state if you attend and take an active role in all aspects of the meeting.

C. P. C.

(Continued from page 132)

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Mikkelsen, W. P.: Intestinal Angina: Its surgical significance. Am. J. Surg. 94:262-269, 1957.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Arden Almquist, M.D.
930 N. Elm
McPherson, Kansas

Lyle B. Anderson, M.D.
Holyrood Clinic
Holyrood, Kansas

H. J. Biermann, M.D.
425 East Murdock
Wichita, Kansas

Frank C. Brosius, M.D.
3333 E. Central
Wichita 8, Kansas

C. Herbert Crane, M.D.
1200 Fremont
Manhattan, Kansas

S. S. Daehnke, M.D.
306 State Bank Building
Winfield, Kansas

W. D. Hilst, M.D.
2020 Central Avenue
Dodge City, Kansas

William J. Kane, M.D.
105 West 13th
Hays, Kansas

Dean W. Larson, M.D.
2020 Central Avenue
Dodge City, Kansas

Charles D. Litton, M.D.
306 State Bank Building
Winfield, Kansas

Clyde V. Martin, M.D.
2432 State Line
Kansas City, Kansas

Robert McCorkle, M.D.
901 Main
LaCrosse, Kansas

J. A. Ward, M.D.
1206 18th Street
Belleville, Kansas

Warren W. McDougal, M.D.
143 W. 5th
Colby, Kansas

Donald E. McIntosh, M.D.
Parsons Clinic
Parsons, Kansas

Richard L. Meadows, M.D.
State Office Building
Topeka, Kansas

William E. Moore, M.D.
349 N. Main
Kingman, Kansas

Otto Ravenholt, M.D.
City-County Health Dept.
Topeka, Kansas

Donald B. Rinsley, M.D.
Third & Oakley
Topeka, Kansas

Richard A. Siemens, M.D.
510 E. Avenue South
Lyons, Kansas

D. L. Scott, M.D.
Belleville Clinic
Belleville, Kansas

Charles H. See, M.D.
Hill City
Kansas

Chester H. Strehlow, M.D.
Professional Building
Ottawa, Kansas

Paul J. Uhlig, M.D.
3244 E. Douglas
Wichita 8, Kansas

MAKE YOUR RESERVATIONS NOW

For the 103rd Annual Convention
Kansas City, Kansas
April 30-May 2, 1962

Some facilities available

HOTELS

Town House Hotel
7th & State Streets
FInley 2-7500

Holiday Inn Hotel
7508 W. 63rd (Merriam)
COlfax 2-9600

MOTELS

Colonial Motel, Inc.
3930 Rainbow Boulevard
YEllowstone 2-6880

Glenwood Manor Motel
92nd & Metcalf (Overland Park)
MIttchell 9-700

Flamingo Motel
4725 State Street
ATlantic 9-5511

University Motel
4125 Rainbow Boulevard
KEndall 2-3805

Western Hills Motel
W. 67th & Hwy. 50 (Merriam)
HEdrick 2-9400

WELCOME TO KANSAS CITY

Members of the Wyandotte County Medical Society are anticipating being hosts for the 103rd annual meeting of the Kansas Medical Society in Kansas City, Kansas, April 30, May 1, and May 2.

The members of our Auxiliary and Medical Assistants Society are looking forward to being hostesses for their respective state organizations.

Golf and skeet will be in the spotlight Monday, April 30, with the stag that evening.

Our Program Committee has secured an outstanding group of speakers for the general sessions May 1, and the morning of May 2. The topics of general interest range from dandruff to liver disease in women.

You and your wife will enjoy the social evening on Tuesday, May 1, with the K. U. Alumni social hour, followed by the annual banquet, entertainment and dancing.

The House of Delegates will meet the morning of April 30, and the afternoon of May 2.

Several speciality societies will have their meetings on Tuesday and Wednesday.

Most all activities will be in the Town House Hotel.

Spring will be in the air and attending the meeting will be a good spring tonic. Don't miss it! We will be expecting you and your wife.

Yours most truly,

C. L. Francisco, M.D.

President, Wyandotte County Medical Society

P.S.

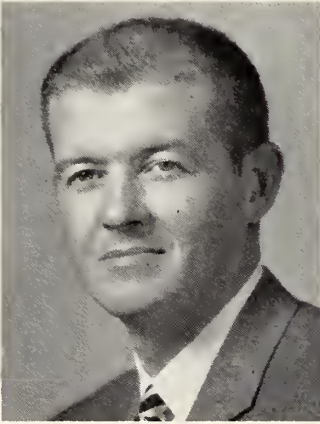
Don't forget to send your medical assistants to their meeting.

C.L.F.

103rd Annual Session, Kansas Medical Society

Monday, April 30, through Wednesday, May 2, 1962

SCIENTIFIC SPEAKERS



MARTIN G. AUSTIN, M.D.
St. Louis, Missouri

Graduate, Tulane University of Louisiana, New Orleans, 1933. Certified by American Board of Obstetrics and Gynecology, 1942; Fellow in American College of Surgeons. Professor of Obstetrics, Chief, Division of Obstetrics, Tulane University; Head of Division of Obstetrics, Charity Hospital, Tulane Unit.

Specialty: Obstetrics-Gynecology



C. ROLLINS HANLON, M.D.
St. Louis, Missouri

Graduate of St. Louis University, 1952. Certified by American Board of Internal Medicine, 1960. Instructor in the Department of Internal Medicine at St. Louis University, Section of Gastroenterology. Also part-time teacher at St. Louis University and in private practice in Internal Medicine.

Specialty: Internal Medicine.



ISADORE DYER, M.D.
New Orleans, Louisiana

Graduate, Loyola College, 1934, and Johns Hopkins University, Baltimore, 1938. Certified by the Board of Thoracic Surgery, 1950, and American Board of Surgery, 1946. Formerly Associate Professor of Surgery, Johns Hopkins University, now serving as Professor of Surgery and Director of Department of Surgery, St. Louis University.

Specialty: Thoracic Surgery

Graduate, Harvard University, Boston, 1936. Certified by American Board of Surgery, 1946. Formerly Associate in Surgery at Harvard Medical School and Associate Professor of Surgery at Ohio State University Medical School. Now serving as Staff Surgeon and Chairman of the Division of Surgery, Cleveland Clinic Foundation Hospital, and member of the faculty of the Frank E. Bunts Educational Institute.

Specialty: Surgery



STANLEY O. HOERR, M.D.
Cleveland, Ohio



WILLIAM L. PROUDFIT, M.D.
Cleveland, Ohio

Graduate, Washington and Jefferson College and Harvard Medical School, Boston, 1939. Certified by the American Board of Internal Medicine, 1946 (Cardiovascular Disease) and a Fellow of the American College of Physicians. Now serving on the staff of the Cleveland Clinic in the Department of Cardiovascular Disease.

Specialty: Internal Medicine

Graduate, University of Illinois, Chicago, 1945. Diplomate of the American Board of Dermatology and Syphilology, 1952. Associate Clinical Professor of Medicine and Head of the Section of Dermatology at the University of Kansas, Consultant at the Munson Army Hospital, Fort Leavenworth, Kansas, and Consultant at the University of Missouri School of Medicine, Columbia. Author of *Manual of Skin Diseases* published by J. B. Lippincott, 1959.

Specialty: Dermatology



GORDON C. SAUER, M.D.
Kansas City, Missouri

Summaries of the Programs

April 30-May 2, 1962, Town House Hotel

Hosts for the meetings Page 141

MONDAY, APRIL 30 Page 141

House of Delegates Breakfast Meeting—7:30 a.m.

Kansas Medical Golf and Skeet Shooting Association—1:00 p.m.

Cocktail Hour and Sports Banquet—6:30 p.m.

TUESDAY, MAY 1

General Sessions—9:00 a.m.-12:00 Noon Page 142

Papers by: Martin G. Austin, M.D.

C. Rollins Hanlon, M.D.

Gordon C. Sauer, M.D.

Luncheon—Question and Answer Period—12:00 Noon

General Sessions—2:00 a.m. Page 143

Papers by: William L. Proudfit, M.D.

C. Rollins Hanlon, M.D.

Gordon C. Sauer, M.D.

TUESDAY EVENING Page 143

Reception—University of Kansas Medical Alumni—5:30 p.m.

Annual Banquet—7:00 p.m.

Invocation

Introduction of Guests

Oath of Office to Incoming President

Entertainment—Dancing

WEDNESDAY, MAY 2

General Sessions—9:00 a.m.-12:00 Noon Page 144

Papers by: Stanley O. Hoerr, M.D.

Isadore Dyer, M.D.

William L. Proudfit, M.D.

House of Delegates Second Meeting—Luncheon—12:00 Noon

Special Society Meetings Page 145

Kansas Medical Assistants Society Page 148

Woman's Auxiliary to the Kansas Medical Society Page 149

Hosts for the Meeting

Kansas City Physicians Arranging the 1962 Session

GENERAL CHAIRMAN—RONALD W. STITT, M.D., KANSAS CITY

PROGRAM COMMITTEE

Quintin C. Huerter, M.D., Kansas City, Chairman

ARRANGEMENTS AND ENTERTAINMENT

Ernest W. Mitts, M.D., Bonner Springs, Chairman

HOST COMMITTEE

Victor Bolton, M.D., Kansas City, Chairman

COMMERCIAL EXHIBITS

John D. Huff, M.D., Kansas City, Chairman

SCIENTIFIC EXHIBITS

Ralph J. Rettenmaier, M.D., Kansas City, Chairman

SPORTS EVENTS

Arville W. Bradford, M.D., Overland Park, Chairman

PUBLICITY COMMITTEE

L. G. Allen, Jr., M.D., Kansas City, Chairman

Monday, April 30, 1962

HOUSE OF DELEGATES

7:30 Breakfast and Meeting
Ballroom, Town House Hotel

KANSAS MEDICAL GOLF AND SKEET SHOOTING ASSOCIATION

A. W. Bradford, M.D., Overland Park—Golf and Dinner

Henry Sullivan, M.D., Shawnee—Skeet Shooting

1:00 Competition Matches

Golf—Brookridge Country Club, 103rd and Antioch Road, Overland Park
Shooting and Fishing—Kansas Field and Gun Club, 87th and Monticello Road, Kansas City

6:30 Cocktail Hour—Sports Banquet—Brookridge Country Club

TELEPHONE NUMBER

. . TOWN HOUSE HOTEL FInley 2-7500

Junior Ballroom

MORNING

8:00 REGISTRATION—TICKETS—INFORMATION
LOBBY

SECOND GENERAL SESSION

C. Arden Miller, M.D., Kansas City, *presiding*

FIRST GENERAL SESSION

C. L. Francisco, M.D., Kansas City, *presiding*

9:00 WELCOME TO KANSAS CITY

*C. L. Francisco, M.D., President
Wyandotte County Medical Society*

9:10 GREETINGS

*Frederick E. Wrightman, M.D., Sabetha
President, Kansas Medical Society*

9:20 LIVER DISEASE IN WOMEN

Martin G. Austin, M.D., St. Louis

Liver disease in women is of interest not only because of the etiological differences between man and woman but also because of the seemingly increased severity of the disease in women. The concept of auto-immune mechanisms being responsible for some of the more severe types of liver disease will be discussed.

10:00 INTERMISSION TO VIEW COMMERCIAL AND
SCIENTIFIC EXHIBITS

10:20 EVERYDAY PROBLEMS IN VASCULAR SURGERY

C. Rollins Hanlon, M.D., St. Louis

Patients present themselves in the office with a variety of complaints which may signify an underlying vascular surgical problem. Among these are cold feet or hands, intermittent claudication, an infected toe or a sudden numbness in the foot. Others complain of impotence, lumps in the neck or abdomen and painful superficial swellings of the extremities. The evaluation and management of such varied problems is discussed from the standpoint of the practitioner.

11:05 MANAGEMENT OF ACNE, DANDRUFF, ADULT
ATOPIC ECZEMA AND TINEA OF THE
FEET

*Gordon C. Sauer, M.D.,
Kansas City, Missouri*

Very practical points will be presented for everyday office management of four very common skin diseases.

NOON

12:00 LUNCHEON—BALLROOM—Guest speakers will be present for question and answer period

O. W. Davidson, M.D., Kansas City, presiding

TELEPHONE NUMBER

TOWN HOUSE HOTEL Finley 2-7500

May 1, 1962

Junior Ballroom

AFTERNOON

THIRD GENERAL SESSION

3:25 INTERMISSION

J. W. Manley, M.D., Kansas City, *presiding*

2:00 DIAGNOSIS AND TREATMENT OF CARDIAC
ARRHYTHMIAS

William L. Proudft, M.D., *Cleveland*

Covering the common cardiac arrhythmias, emphasizing the clinical rather than the electrocardiographic diagnosis. Those therapeutic measures that are simple, relatively safe and easy to apply will be stressed.

2:45 PERIPHERAL ANEURYSMS

C. Rollins Hanlon, M.D., *St. Louis*

The peripheral aneurysm is an uncommon lesion brought on by trauma, arteriosclerosis or infection. It may be arterial or arteriovenous and may be asymptomatic or productive of profound disturbances of function. The approach to such lesions is illustrated by various clinical examples.

FOURTH GENERAL SESSION

Leland Speer, M.D., Kansas City, *presiding*

3:40 USE OF LOCAL CORTICOSTEROID INJECTIONS
AND SARAN WRAP THERAPY FOR COMMON DERMATOSES

Gordon C. Sauer, M.D.,
Kansas City, Missouri

The development of two unique local applications for corticosteroid preparations has rather drastically altered the treatment of several very chronic and resistant dermatoses, including psoriasis and neurodermatitis.

EVENING

5:30 RECEPTION—JUNIOR BALLROOM—UNIVERSITY OF KANSAS MEDICAL ALUMNI
ASSOCIATION

7:00 ANNUAL BANQUET—BALLROOM—KANSAS MEDICAL SOCIETY

F. E. Wrightman, M.D., Sabetha, *presiding*

Invocation—Rev. Dr. Paul B. McCleave, A.M.A., *Chicago*

Introduction of Guests

Oath of Office to Incoming President

Entertainment

“Medical Hit Parade” presented by the Greene County Boys, Greene
County Medical Society, *Springfield, Missouri*

Dancing

Tony Di Pardo and his orchestra

TELEPHONE NUMBER TOWN HOUSE HOTEL Finley 2-7500

Wednesday, May 2, 1962

Junior Ballroom

MORNING

8:00 REGISTRATION—INFORMATION
LOBBY

10:20 INTERMISSION

FIFTH GENERAL SESSION

G. R. Peters, M.D., Kansas City, *presiding*

9:00 MANAGEMENT OF UPPER GASTROINTESTINAL BLEEDING

Stanley O. Hoerr, M.D., Cleveland

In most instances, hemorrhage from the upper gastrointestinal tract will stop spontaneously, and this should be the initial aim of treatment. If bleeding continues despite conservative measures, or if it recurs massively after apparently quieting down, urgent or emergency operation may be necessary. The usual cause would be a duodenal ulcer, and there is not substantial experience to substantiate the usefulness of ligation of the vessels in the ulcer base, coupled with vagotomy and pyloroplasty treatment in bad risk patients. In some a gastric resection will still be necessary.

9:40 ACCIDENTAL TRAUMA IN PREGNANCY AND LABOR

Isadore Dyer, M.D., New Orleans

The increasing number of pregnant women injured in vehicle accidents poses a problem of diagnosis and management for the obstetrician, although the risk to pregnancy is not as great as might be anticipated. The management of gunshot and stab wounds of the pregnant uterus will be considered. A case of traumatic abruptio placenta with a stillborn carried for three months will be presented.

SIXTH GENERAL SESSION

F. J. Nash, M.D., Kansas City, *presiding*

10:35 ELECTROCARDIOGRAPHY: STUDIES IN RIGHT PRECORDIAL LEADS

William L. Proudfit, M.D., Cleveland

Clues to the diagnosis of incomplete right bundle branch block, myocardial infarction and right ventricular hypertrophy will be discussed.

11:20 THE SURGICAL TREATMENT OF CHRONIC DUODENAL ULCER

Stanley O. Hoerr, M.D., Cleveland

The national trend in this field has been toward greater conservatism and the use of vagus transection either with a drainage procedure, such as pyloroplasty or gastrojejunostomy, or with a limited (50 per cent or less) gastric resection. The gastric surgeon should be prepared to perform any one of these operations for a specific situation in a specific patient. The operation should be tailored to suit the patient, rather than any one operation used indiscriminately on all patients.

NOON

12:00 LUNCHEON—BALLROOM—House of Delegates second meeting

TELEPHONE NUMBER

TOWN HOUSE HOTEL Finley 2-7500

Specialty Society Meetings

May 1 and 2, 1962, Town House Hotel

Tuesday, May 1, 1962

EYE, EAR, NOSE AND THROAT SECTION
KANSAS MEDICAL SOCIETY

Charles McCoy, M.D., Hutchinson, President

RADIOLOGICAL SOCIETY

Lewis G. Allen, Jr., M.D., Kansas City, President

7:30 BREAKFAST AND BUSINESS MEETING
State Suite

12:00 LUNCHEON AND BUSINESS MEETING
Blackstone Room

Wednesday, May 2, 1962

KANSAS SOCIETY OF ANESTHESIOLOGY

Ray T. Parmley, M.D., Wichita, President

1:30 OBSTETRICAL ASPECTS OF PERINATAL MORTALITY

Isadore Dyer, M.D., New Orleans

12:15 LUNCHEON MEETING—Blackstone Room
PERIDURAL ANESTHESIA

Oral B. Crawford, M.D., Springfield, Missouri

2:15 A LONG RANGE LOOK AT PERINATAL MORBIDITY

Milton S. Glatt, M.D., K.U. School of Medicine

KANSAS OBSTETRICAL SOCIETY AND
PEDIATRIC SOCIETY SECTIONS

Cornhusker Room

A. H. Baum, M.D., Dodge City, President,
Obstetrical Society

R. L. Dreher, M.D., Salina, President,
Pediatric Society

2:50 REPORT FROM TWO YEAR STUDY BY PERINATAL MORTALITY COMMITTEE OF THE KANSAS MEDICAL SOCIETY

3:00 OPEN DISCUSSION CONCERNING JOINT OBSTETRICAL AND PEDIATRIC PROBLEMS

*R. L. Dreher, M.D., Salina, presiding
Panel: Drs. Isadore Dyer, Milton S. Glatt, A. H. Baum, Patricia T. Schloesser, William H. Couch*

12:00 LUNCHEON

4:00 COCKTAIL HOUR—Blackstone Room

TELEPHONE NUMBER

TOWN HOUSE HOTEL Finley 2-7500

American College of Chest Physicians, Kansas Chapter

(See Bulletin Board for meeting room)

Lew W. Purinton, M.D., Wichita, *presiding*

1:30 BUSINESS MEETING—election of officers

2:00 PHONOCARDIOGRAPHIC STUDY OF HEART
SOUNDS IN THE AGED

*Chandler S. Bethel, M.D. and
E. W. Crow, M.D., Wichita
Presented by Chandler S. Bethel, M.D.*

2:30 CONTRASTING MANIFESTATIONS OF BULLOUS
LESIONS OF THE LUNG

*William E. Ruth, M.D., V. A. Hospital
and K. U. Medical Center*

3:00 THE SURGICAL TREATMENT OF AORTIC
BRONCHIAL CEPHALIC OCCLUSIONS IN
CEREBRAL VASCULAR DISEASE

*Creighton A. Hardin, M.D.,
K. U. Medical Center*

3:30 PULMONARY SARCOIDOSIS

*M. Singh, M.D., Fellow, Respiratory
Diseases, K. U. Medical Center*

4:00 BRONCHIAL ASTHMA—PANEL DISCUSSION

*John Fulton, M.D., Wichita, presiding
Panel: Drs. Ralph Hale, Harry Lazar,
Alex Roth, William E. Ruth*

SPECIAL EVENTS

Monday—April 30

Kansas Medical Golf and Skeet Shooting Association

1:00 p.m. Competition matches

Golf—Brookridge Country Club, 103rd and Antioch Road, Overland
Park—Greens will be available to golfers all day.

Other Events—Kansas Field and Gun Club, 87th and Monticello
Road, Kansas City

6:30 p.m. Cocktail Hour and Sports Banquet—Brookridge Country Club

BE SURE TO SEND IN YOUR RESERVATION CARDS!

Tuesday—May 1

12:00 Luncheon—Ballroom—Town House Hotel

5:30 p.m. K.U. Medical Alumni Association Reception—Junior Ballroom

7:00 p.m. Kansas Medical Society Annual Banquet—Ballroom
Entertainment—The Medical Hit Parade
Dancing—Tony DiPardo and his Orchestra



ANNUAL BANQUET

Tuesday Evening, 7:30 p.m.

Don't Miss . . .

THE MEDICAL HIT PARADE



Titles such as "Hemorrhoids," "Halitosis Beats No Breath At All," "Keep Your Eye on Medicare," "The PR Man" and "The A.M.A." cannot be found on nationally syndicated top twenty lists but they are bringing a smile to the faces of professional men from coast to coast who have had the opportunity to hear the Medical Hit Parade recordings of Greene County (Missouri) Medical Society members on their records, "Borborygmi" and "Placenta Preview."

Over \$20,000.00 in profits from the sale of the records has gone into the funds of the Greene County Medical Society Foundation, established to provide scholarships and loans for medical students. The Foundation now has loans to fifteen medical students totalling \$14,100.00 with four different medical schools represented, University of Missouri, Oklahoma, Vanderbilt, and St. Louis University. In addition, a \$1,000.00 grant has been made to the Student American Medical Association Loan Foundation.

Lyrics for the shows were written by Dr. James T. Brown, with musical arrangements by Professor Wilfred Adler, Southwest Missouri State College Music Department. The cast, besides Dr. Brown, include Drs. Charles E. Lockhart, Don F. Gose, Harold H. Lurie, Wilfred E. Wooldridge, F. T. H'Doubler, Jr., and Fred C. Collier, all members of the Greene County Medical Society.

The "Medical Hit Parade" show was originally presented at the 1958 Annual Installation Banquet of the Society and it proved such a hit that it was presented at the Missouri State Medical Association Annual Session and then to the 1958 AMA PR Institute in Chicago. New versions of the show were presented in 1959 and 1960. The show has been presented before national, state and local medical organizations throughout the country.

So many copies of "Borborygmi," the recording of the first show, were sold that by popular demand a sequel was recorded and entitled "Placenta Preview." Over 10,000 copies of the records have been sold.

The records are available at \$3.25 each, including postage, and may be ordered from the Greene County Medical Society, Empire Building (formerly Medical Arts Building), Springfield, Missouri.



Kansas Medical Assistants Society

April 28-30, 1962, Town House Hotel

Saturday Evening, April 28

8:00 REGISTRATION

8:00 OPEN HOUSE—Courtesy Munns Medical
Supply Company

Sunday, April 29

8:00 EXECUTIVE MEETING

8:00 COFFEE

Leavenworth County Medical Assistants
Helen Horvath, Chairman

9:00 REGISTRATION

10:00 CALL TO ORDER

Virginia Brand, President
Kansas Medical Assistants Society

10:05 INVOCATION

10:15 WELCOME

C. L. Francisco, M.D., President
Wyandotte County Medical Society

10:25 RESPONSE

F. E. Wrightman, M.D., President
Kansas Medical Society

10:35 BUSINESS SESSION AND ELECTION OF OFFI-
CERS

12:00 PRESIDENT'S LUNCHEON

1:30 BUSINESS SESSION RECONVENES

2:30 RELATION OF CHRISTIAN FAITH TO HEALTH
William P. Williamson, M.D.
University of Kansas School of Medicine

TELEPHONE NUMBER

3:00 PUBLIC HEALTH AND PREVENTIVE MEDICINE

Charles E. Lewis, M.D.
University of Kansas Medical Center

7:00 BANQUET

GREETINGS

P. C. Nohe, M.D., Chairman
Medical Assistants' Advisory Committee
Wyandotte County Medical Society

ORIENTAL ENTERTAINMENT

Monday Morning, April 30

9:00 REGISTRATION

9:30 CALL TO ORDER AND ANNOUNCEMENTS

Virginia Brand, President
Kansas Medical Assistants Society

9:50 GREETINGS

Vera Wooton, General Chairman
President, Wyandotte County
Medical Assistants Society

10:00 PROBLEMS IN MEDICINE RELATED TO COM-
PENSATION CASES

Earl Sifers, M.D., Kansas City

10:30 PLASTIC SURGERY PROCEDURES

Richard C. Ye, M.D., Kansas City

12:30 LUNCHEON

Dr. and Mrs. Homer Hiebert,
Luncheon Program

INSTALLATION OF OFFICERS

TOWN HOUSE HOTEL Finley 2-7500

Woman's Auxiliary to the Kansas Medical Society

April 30-May 2, 1962

Monday, April 30

- 8:30- 3:00 REGISTRATION—Hospitality Room,
State Suite, Town House Hotel
- 12:30 PAST STATE PRESIDENTS' LUNCHEON
—Terrace Club, New Brotherhood
Building, 8th and State Streets
- 2:30- 4:00 PRE-CONVENTION BOARD OF DIREC-
TORS MEETING—Y.W.C.A., 6th and
State Streets
- 6:30 SOCIAL HOUR-BUFFET DINNER—
Meadow Oaks Country Club, 7340
State Avenue. Honoring State Offi-
cers—Mrs. P. E. Hiebert, President,
Wyandotte County Auxiliary, pre-
siding. Program: Helen "Mahealani"
Williams, distinguished dancer and
musician. The name "Mahealani"
was bestowed on her by her Hawai-
ian friends at the time she visited
there and studied their history, cus-
toms and dances.

Tuesday, May 1

- 8:30-11:30 REGISTRATION—Y.W.C.A., 6th and
State Streets
- 8:30- 9:00 COFFEE AND ROLLS—Y.W.C.A.
- 9:00-11:30 GENERAL SESSION—Y.W.C.A.
- 1:00 LUNCHEON—Homestead Country
Club, 6510 Mission Road. Mrs. Wil-
liam T. Braun, State President, pre-
siding. Honoring Mrs. C. Rodney
Stoltz, North Central Regional Vice
President, Woman's Auxiliary to the
American Medical Association, and
representatives of the Kansas Medi-
cal Society. Mrs. C. Rodney Stoltz,
Guest Speaker.
- 3:00- 4:30 POST-CONVENTION BOARD OF DIREC-
TORS MEETING—Homestead Country
Club
- 7:00 ANNUAL KANSAS MEDICAL SOCIETY
BANQUET—Ballroom, Town House
Hotel

Wednesday, May 2

- 9:45 BRUNCH—Terrace Club, New Brotherhood
Building, 8th and State Streets

TELEPHONE NUMBER TOWN HOUSE HOTEL Finley 2-7500

President and President-Elect

The Major Officers of the Kansas Medical Society

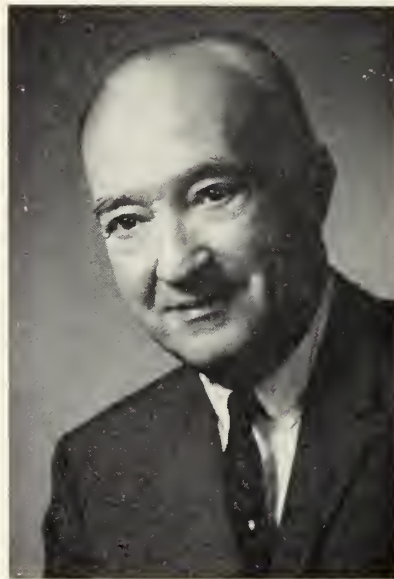
FREDERICK E. WRIGHTMAN, M.D., *President*

Frederick E. Wrightman, M.D. would be the first to insist this space belongs to the memory of Harold M. Glover, M.D. Upon achieving the presidency, Dr. Glover had his committees appointed. He held high hopes for a variety of far-reaching projects the Society might accomplish. Then, during the early months of his term of office, Dr. Glover's death altered the course of many events.

An injury sustained by H. St. Clair O'Donnell, M.D., 1st Vice President, and other complicating situations left the presidency vacant until the Council acted to request Dr. Wrightman to again step into the presidency and guide this Society during the remainder of the unexpired term.

It is in keeping with Dr. Wrightman's philosophy that he bowed to this request. No problem has ever been so small that he brushed it aside or so large that he compromised in its solution. There are not many men with Dr. Wrightman's depth of sincerity, who hold so steadfast to ideals, whose devotion to a sense of duty is as absolute, and who have so genuine a love for the medical profession.

During his second term as president, Dr. Wrightman served his Society, as during the first, with honor, distinction and success. The Council knew he would. That is why, during a crisis, they called upon him.



NORTON L. FRANCIS, M.D., *President-Elect*

Norton L. Francis, M.D., of Wichita, becomes president of the Kansas Medical Society on May 2, 1962. He enters this high office with a breadth of experience, with a genius for leadership, and with support from his members that is not often found in this combination or to this degree.

Dr. Francis' professional achievement and his strict adherence to the highest of ethical standards give to him the respect of his colleagues. His concern toward civic responsibilities and over the relationships between the medical profession and the public gained for him the admiration of his colleagues. His previous service to this Society enlisted their confidence.

Dr. Francis has been president of the Sedgwick County Medical Society, councilor from that district, alternate A.M.A. delegate, a member and chairman of numerous committees. He is currently directing the work of the speaker's bureau in Wichita and has been active in other public relations projects.

The Society chose well. Dr. Francis comes to the presidency with a background that has altogether prepared him for his responsibilities. His exceptional ability, as demonstrated by his numerous previous successes in positions of leadership, will make this an outstanding year. The ideas Dr. Francis plans to present to the House of Delegates and the outline of his programs for this Society will bear out the fact of this prediction. It will be a great year, a busy and a productive year.



Councilor Reports

Activities in the Councilor Districts of Kansas

SECOND DISTRICT

The Wyandotte County Medical Society has had rather an interesting twelve months under the leadership of Drs. William Abrams, and C. L. Francisco. No major problems have presented themselves in this area; however, some rather interesting situations have appeared from time to time, without dire consequences.

As of December 20, 1960, the total membership in the society was 210, and as of December 20, 1961, the total membership was 198. There have been nine regular meetings of the Wyandotte County Medical Society with various subjects of discussion noted. The meetings have not been of a particularly scientific nature, but certainly of considerable importance and interest to the Medical Society. One meeting was devoted to the doctor and his income tax, discussed by Mr. James Nusbaum who is an authority in this field.

A color film on blood fractions in clinical medicine has been shown and we have had one meeting with our President and Executive Director in charge at which good attention and good attendance was manifest. The discussion of that evening had to do with legislative matters of interest not only to the Wyandotte County Medical Society, but to the profession at large.

Mr. Frank Wooley, A.M.A. Field Representative, was present at one meeting and discussed the present peril to the freedom of medicine.

Our annual dinner meeting for the wives of doctors, which was principally a social evening following a short business session, was held at Quivera Lake Country Club. The speaker for that evening was Dr. C. Arden Miller, dean of the University of Kansas Medical Center.

The City-County Health Department has cooperated with the County Society and vice-versa. One meeting was given over to the Health Department at which they presented a film entitled "The Innocent Party." Considerable discussion and several questions were asked following the showing of this film.

Mr. Walter Coburn, administrator of Bethany Hospital, presented one meeting to us at his hospital on hospital costs.

In the fall a joint meeting with the local Bar Association was well attended. Discussion for that evening was the situation in the Orient.

At the present this County Society is in the midst of activities pointing toward a practiced disaster alert to be carried forth in the very near future. This requires considerable cooperation on the part of many lay groups and the profession as well.

We feel this has been a quite successful year in District Two, and that success is due to the cooperation among many different individuals too numerous to mention here.

J. WARREN MANLEY, M.D., *Councilor*

THIRD DISTRICT

During the past year it has been my pleasure to visit each county society in the district and to discuss their problems with them.

A rather unsuccessful attempt to hold a district meeting in December was made. Though it was very poorly attended the district was happy to have Dr. Wrightman as our guest for a very pleasant evening at one of the local clubs.

There are no particular problems in the third district this year.

GEORGE R. MASER, M.D., *Councilor*

FOURTH DISTRICT

The Centennial year of Kansas medicine has become past history. No unusual problems have been brought to my attention.

The Southeast Kansas Medical Society, which was organized over fifty years ago, has ceased to function due to lack of interest and poor attendance.

Dr. K. Krantz, Professor of Obstetrics and Gynecology, has been very active in his crusade against cancer in the gynecological field.

The Southwestern Bell Telephone company extended an invitation to the physicians of this district in February for a dinner meeting at the Parsonian Hotel in Parsons. Several of the company officials and Dr. Forrest Loveland presented the medical plan of the company for the employees.

I urge your attendance at the State Medical meeting in May, especially the delegates of each component society.

D. B. MCKEE, M.D., *Councilor*

FIFTH DISTRICT

The County Societies in the Fifth District presented no problems or requests for action on the part of their councilor during the past year.

The Kansas University Postgraduate Circuit courses for this area have been presented at the new St. Mary Hospital in Manhattan, Kansas, and the attendance from the Fifth District has been excellent.

The Riley County Medical Society served as the host society for a meeting to which all doctors and their wives in the Fifth District were invited to attend on March 1, 1962. Dr. Fred Wrightman, President of the Kansas Medical Society, discussed many of the current problems of the Kansas doctors. Mrs. H. Lee Barry, president-elect of the Woman's Auxiliary, gave a stimulating talk, and Mr. Jim Imboden of the executive office was present to answer many questions regarding the State Society's activities. Although attendance from the counties in the district was somewhat disappointing, the meeting was felt to be a lively and stimulating one.

RALPH G. BALL, M.D., *Councilor*

SIXTH DISTRICT

Our membership is now composed of 180 active members, 16 resident, eight associate, one fellowship and one affiliate for a total of 206. This is about the same as at the end of 1960.

The Membership continued the special assessment of \$15 for the A.M.A. Education and Research Foundation and the Science Fair assessment was also continued, this in the amount of \$5 per member per year. Along these same lines, the society again sponsored a boy to Sunflower Boys' State and continued to underwrite 31 subscriptions to *Today's Health* to be distributed to the schools, hospitals and libraries in the Topeka area.

The Rural Health Committee, with the help of the Woman's Auxiliary, again sponsored a program for the Extension Council. This year's program was centered on mental health.

Special note should be made that Drs. Jimmy Stewart, O. A. McDonald, F. C. Boggs and G. L. Kerley were honored by membership in the 85-50 Club which is an honorary group composed of those members of the society who have completed 50 years of medical practice.

The usual number of regular scientific programs were held, including both medical and legal subjects. A joint meeting was held with the Dental Society and a special meeting was held with the dentists, pharmacists, detail men, veterinarians and physicians.

JAMES D. MCCLURE, M.D., *Councilor*

SEVENTH DISTRICT

The Seventh District has had an eventful year. On May 3, 1961, five counties united and were granted a charter as the Flint Hills Medical Society. These five counties were Lyon, Coffey, Chase, Morris, and Osage.

There has been excellent attendance at the Postgraduate Courses held in Emporia.

Our combined dinner meeting with the Auxiliary was held March 6 at the Emporia Country Club. It was quite successful. Thirty couples attended. We were honored to have as our guests Doctor and Mrs. Frederick E. Wrightman; Mrs. H. Lee Barry, president-elect of the Medical Auxiliary, and her husband, Doctor H. Lee Barry; and Mr. and Mrs. James Imboden from the state office.

If we have a problem, it still consists in the fact that nearly all of our meetings are devoted to business matters rather than scientific presentations. Yet these problems are important and must be dealt with one way or another. We are thinking of inaugurating an executive committee to help solve some of the lesser problems out of meetings.

The relationship between the component counties of our Flint Hills Medical Society and the individual physicians has, as before, been characterized by an exemplary friendliness.

We plan to have a good representation at the State meeting.

It is a pleasure to be a Councilor for the Seventh District.

J. L. MORGAN, M.D., *Councilor*

EIGHTH DISTRICT

The component medical societies of the Eighth District have reported no major problems or requests to their councilor during the last year.

The interprofessional relations with the allied professions has been very harmonious. Butler County has held, for the last three years, a regular meeting with the Bar Association of that county with increased good feeling between the groups.

The past year society meetings in Butler and Cowley Counties have been well attended with excellent programs for the education and advancement of our membership. The circuit courses from the Medical Center held this year in Winfield has had the largest attendance on the eastern circuit.

The new full service contract of Blue Shield in Butler County shows an enrollment of 50 per cent of the present membership at the end of one year of operation.

Contributions to the American Medical Education

Fund have been excellent in the Eighth District.

I wish to thank all of the members of this district for their interest in furthering Kansas Medicine.

J. GORDON CLAYPOOL, M.D., *Councilor*

NINTH DISTRICT

District Nine was ably represented by Dr. John C. Mitchell of Salina. Dr. Mitchell was elected second vice-president, leaving the office of councilor vacant. I, therefore, took over his unexpired term. The district has been represented continuously on the council and all meetings have been attended either by Dr. Mitchell or the present councilor.

It should be announced that next fall there probably will be an all-district meeting to include both the doctors and their wives. This has been done in other areas of the state and has seemed to meet with the general approval of the members of each district. This will be held in Salina. The program will probably consist of officers of the society and the executive office. It will be mainly informative and political in nature. The date will be announced in the early fall.

L. S. NELSON, JR., M.D., *Councilor*

ELEVENTH DISTRICT

The Eleventh District of the Kansas Medical Society has enjoyed a very successful year. We were most fortunate in obtaining from our parent society Mr. Dallas Whaley, former editor of the JOURNAL to serve as our executive director. We also witnessed the termination of Mr. Martin Baker's services to the Sedgwick County Medical Society after fourteen years of faithful service to organized medicine in this area. Mr. Baker was presented with an engraved wrist watch and a framed parchment resolution in January, 1961, in appreciation of his work for the Sedgwick County Medical Society. All of the physicians in this area wish him well in his new position with the Los Angeles County Medical Association.

Our scientific programs presented at the Sedgwick County Medical Society have continued to be outstanding and our meetings have been well attended.

As in the past, one of our most successful public relations efforts is the Science Fair which is held each year in Wichita. The Fair for 1961 was very successful and the 1962 Fair promises to be an outstanding event.

The Midwest Cancer Conference has just completed its session here in the city of Wichita and was an outstanding event for all of us. We are very pleased that our brother physicians in the state con-

tinue to support us in presenting this excellent scientific meeting.

The Medical Auxiliary to the Medical Society of Sedgwick County has been very active during the past year. One of their activities has been the orientation of their membership concerning the problem of medical care for the aged. Their meetings continue to be well attended and we are grateful for the support which we receive as physicians from our Medical Auxiliary.

We are honored to have as president-elect of the Kansas Medical Society one of our outstanding physicians, Dr. N. L. Francis.

We are looking forward to the annual meeting of the Kansas Medical Society to renew old friendships and to take part in the fine scientific sessions which are planned. This Councilor wishes to express thanks to all in his district for cooperation and help during 1961.

WILLIAM J. REALS, M.D., *Councilor*

TWELFTH DISTRICT

The past year has been a rather quiet one in this district with one notable exception.

We invited Mrs. William T. Braun, President of the State Auxiliary, Mrs. H. Lee Barry, President-elect of the Auxiliary, Dr. and Mrs. Frederick Wrightman, Mr. and Mrs. Oliver Ebel, Mr. and Mrs. Jim Imboden, to a dinner meeting held for the doctors in this district. This meeting was, I felt, very enjoyable as well as beneficial. The doctors and their wives enjoyed the talks given by Mrs. Braun and Dr. Wrightman.

I understand that several of the other districts in the state have had such meetings and they, too, were impressed by them. I think all of the Councilor Districts should be encouraged to promote such meetings in the future in cooperation with the Auxiliaries.

ALBERT C. HATCHER, M.D., *Councilor*

THIRTEENTH DISTRICT

Medical affairs have been relatively quiet during the past year. The Councilor found it possible to visit each of the component county societies, which he found stimulating and rewarding. During the year, we have continued to lose physicians to graduate residency training and by moves to other areas. These have not been balanced by the arrival of new men in the area. There remain many openings for family doctors in the district, as well as for specialists.

Consolidation of a two-county society with the largest multi-county society in the district was completed during the year. There have apparently been

no great difficulties encountered in the district or brought to the attention of the Councilor. We anticipate a District meeting with state medical officers and staff shortly after the date of this report.

A. M. CHERNER, M.D., *Councilor*

FIFTEENTH DISTRICT

The activities of the Fifteenth District for the year 1961-62 were somewhat limited since I was a new councilor and more or less spent the year in getting acquainted with the duties of a councilor. I attended all of the meetings in Topeka, however, that were called by the state president.

The Fifteenth District did initiate a new program this year. This was a meeting of the entire councilor district with their wives. The meeting was held the latter part of October at the Silver Spur Motel. We were quite fortunate to have most of the Society officers present for this meeting and it was very well attended by the members of the district. The councilor district consists of Ford, Gray, Seward, and Iroquois County Societies. A dinner meeting was held after a social hour. After the dinner the women adjourned to a separate room and had a meeting with their State president and vice-president who were kind enough to attend; the physicians withdrew to another room and we had a very fascinating speech by Dr. Norton Francis, president-elect, concerning the problems of the State society at this moment. The officials present at our meeting were Dr. Norton Francis, President-Elect, Kansas Medical Society; Oliver Ebel, Executive Secretary, Kansas Medical Society; and Jim Imboden, Executive Assistant, Kansas Medical Society. Mrs. W. T. Braun, Pittsburgh, the president of the Woman's Auxiliary was in attendance, as was Mrs. H. L. Barry of Wichita, the vice-president of the Woman's Auxiliary.

Also attending the meeting was the past president of the Kansas Medical Society, Nobel Melencamp, who was recognized, during the course of the council meeting, for his years of service to the Kansas Society. Other officers present were Dr. Richard Speirs, President, Ford County Medical Society; Mrs. Clair Conard, president of the Woman's Auxiliary of the Ford County Society; Dr. Rod Bradley, President, Iroquois County Medical Society; Mrs. Richard Hill, the president of the Woman's Auxiliary of the Iroquois Society. We were also fortunate to have Mrs. Lyle Glens who is a third vice-president of the Woman's Auxiliary, Independence; Mrs. E. Burke Scagnelli, the fourth vice-president of the Woman's Auxiliary; and Mrs. Rod Bradley, councilor for the Fifteenth District from the Iroquois Society in attendance.

At the meeting of the Woman's Auxiliary of the Fifteenth District plans were made for the coming year and activities were outlined, primarily along the line to see what the women could do to head off the King-Anderson bill and various socialized schemes.

Dr. Norton Francis spoke to the men about problems that were arising in the State, on various facets, and commented on the necessity of having a good public relations program and what they were doing in Sedgewick County along these lines.

A very active program has been undertaken in the Fifteenth District to try to get before the people in our area medicine's side of the proposed socialized legislation concerning medicine. The local press has been very cooperative and Dr. Clair Conard, the chairman of this committee, has done a splendid job in having various articles placed in the newspaper concerning our efforts.

EVAN R. WILLIAMS, M.D., *Councilor*

SIXTEENTH DISTRICT

The last year has been a rather inactive one for our district. It was highlighted by one early summer special meeting at the Nebraska ranch of Dr. Haddon Peck of St. Francis, a former president of the Kansas Medical Society. The members and wives were wine and dined on various wild game brought home by Dr. Peck from his hunting trips to the Rockies. There was also fishing from his private lake. Some lucky members arrived on Saturday and made a very enjoyable weekend outing. Our heartiest thanks and appreciation to Dr. Peck and, of course, it wouldn't be nice to hint for a future date.

Our postgraduate meetings have continued to be very well attended and enjoyed. Our average attendance, I believe, continues to be the highest in the state; consequently, due to the miles of travel involved, our business meetings are held in conjunction with the postgraduate meetings. There has been nothing of major importance for special conferences.

The film on heart resuscitation has been shown at some of the hospital staff meetings in our district. I heartily believe it should be a must for every physician in the state to learn more about the immediate application of intermittent sternal pressure for acute heart failure.

We have had a few new members move into our district, and a few have moved out. The net result is still a slight shortage of physicians for the Northwest Kansas Councilor District. We will be happy to advise any new blood contemplating practice about the opportunities and advantages of the atomically safest spot in America.

EDWARD F. STEICHEN, M.D., *Councilor*

(Continued on page 173)

Committee Reports

Activities of the Committees of the Kansas Medical Society

ALLIED GROUPS

J. B. Pretz, Kansas City, Chairman; J. J. Basham, Fort Scott; M. L. Belot, Jr., Lawrence; H. O. Bullock, Independence; A. R. Chambers, Iola; W. M. Cole, Wellington; G. W. Cramer, Parsons; R. A. Crawford, Hutchinson; F. J. Eckdall, Emporia; F. B. Emery, Concordia; J. H. Gilbert, Seneca; R. M. Glover, Newton; D. A. Huebert, Wichita; K. A. Powell, Leavenworth; D. J. Smith, Overland Park; N. C. Smith, Arkansas City; M. O. Steffen, Great Bend.

The Allied Groups Committee had one meeting the past year on March 11, 1962. After several preliminary meetings with individuals we were able to meet on that day with the executive committee of the Kansas State Nurses Association. Our purpose in planning and holding this joint meeting is to foster better and closer relations between the Medical Society and the Nurses Association. It is our belief that these two groups, which probably work more closely together than any others in the direct care of the patient, are painfully deficient in cooperation and mutual understanding. Initial measures to help remedy this problem will be recommended.

JAMES B. PRETZ, M.D., *Chairman*

ANESTHESIOLOGY

R. T. Parmley, Wichita, Chairman; H. R. Barnes, Hutchinson; H. J. Brown, Winfield; W. E. Enders, Kansas City; E. L. Frederickson, Kansas City; V. G. Henry, Newton; M. R. Knapp, Wichita; R. S. McKee, Leavenworth; W. O. Martin, Topeka; A. W. Mee, Wichita; W. F. Powers, Wichita; L. J. Ruzicka, Concordia; H. F. Spencer, Emporia; J. R. Sumner, Hutchinson; E. T. Wulff, Atchison.

The Committee on Anesthesiology did not formally hold a meeting this year, but a considerable amount of work has been accomplished in regard to developing an anesthesia mortality study group similar to the one long conducted by the Maternal Welfare Committee.

Questionnaires have been tentatively improved and work is currently being done to develop this program along the same lines as the Maternal Welfare Mortality Study Committee. A meeting is tentatively planned at the time of the Annual Meeting in Kansas City, at which time it is hoped that there will be enough information for the Anesthesiology Committee to determine whether or not a Mortality Study Committee is feasible. While there are many sim-

ilarities between this committee's proposed program and the program long conducted by the Maternal Welfare Committee, there are also a number of differences which require special consideration.

It is hoped that a supplemental report can be made at the time of the House of Delegates meeting on May 2.

R. T. PARMLEY, M.D., *Chairman*

AUXILIARY COMMITTEE

C. H. Benage, Pittsburg, Chairman; H. L. Barry, Wichita; W. T. Braun, Pittsburg; V. E. Brown, Sabetha; L. G. Glenn, Protection; J. B. Jarrott, Hutchinson; L. H. Leger, Kansas City; R. H. O'Neil, Topeka; E. B. Scagnelli, Dodge City.

At the annual meeting of the Woman's Auxiliary last year in Wichita, Kansas, a program was developed whereby all Councilor Districts would meet jointly with the Auxiliary. At these district meetings, the presidents of the Kansas Medical Society and the Kansas Woman's Auxiliary were invited to speak to the physicians and their wives regarding matters of importance to the Medical Society and the Auxiliary.

Dr. Harold M. Glover was extremely enthusiastic about the possibilities to be derived from this type of district councilor meeting. Eleven such meetings were held this year, and it is hoped that these meetings can be continued in 1962 and 1963.

It would be desirable if these district meetings could be held this year between September and the first of February.

The committee, as usual, cooperated with the Auxiliary on a number of other items of business and, as in the past, are working with the Auxiliary in planning the annual meeting to be held in Kansas City at the time of the State Meeting of the Kansas Medical Society.

C. H. BENAGE, M.D., *Chairman*

BLUE SHIELD RELATIONS

H. R. Schmidt, Newton, Chairman; P. L. Beiderwell, Belleville; F. J. Bice, Wakeeney; C. W. Bowen, Topeka; R. E. Capsey, Centralia; O. R. Cram, Larned; C. W. Erickson, Pittsburg; G. W. Fields, Scott City; L. G. Glenn, Protection; A. C. Hatcher, Wellington; P. E. Hiebert, Kansas City; H. P. Jones, Lawrence; W. R. Lentz, Seneca; K. L. Lohmeyer, Emporia; J. R. Neuen-

schwander, Hoxie; B. G. Smith, Arkansas City; E. A. Walsh, Onaga.

The Committee on Blue Shield Relations met on Sunday, September 10, 1961, in Hutchinson and discussed the following topics:

I. COOPERATION WITH THE BLUE SHIELD EFFORT IN NATIONAL ACCOUNTS

At the present time, Kansas Blue Shield has approximately 60,000 employees and dependents enrolled under National contracts. These subscribers are usually employed by a firm that does business in more than one state (about one-half of this total are Federal Employees). The contracts, at the present time, are known as "indemnity" contracts and service benefits are not available to these members. The potential members in this category are somewhere between 250,000 and 300,000 persons which includes the aircraft and railroad industries. Most of this potential is influenced by factors outside of Kansas because the main employing office is located in some other state.

A new National Blue Shield contract is being developed and all Blue Shield Plans have been urged to cooperate, if possible, so that enrollment efforts on a national level will be enhanced. A Professional Services Index, which is a type of Relative Value Schedule, has also been developed by Blue Shield for use with the National Accounts.

The committee discussed the procedure for the possible development of a Tri-Level service benefit plan for National Accounts. The committee voted that Blue Shield continue to work on details of a service benefit program for National Accounts to be presented to the District Committees.

II. HOSPITAL UTILIZATION

Through the efforts of this committee and the District Relations Committees, Hospital Utilization Committees have been formed in over 80 hospitals in Kansas.

A special study of high use members was conducted in 1961. After discussion of this project, the committee suggested that a study of short stay cases be made in the future.

III. LOCAL SERVICE BENEFIT PROGRAM (Schedule 3)

A brief report was made concerning the acceptance of the Local County Service Benefit Plan (Schedule 3) referred to as "The Butler County Program." At that time the program had been approved by eight counties. (At the present time, the program has been endorsed by 25 counties.)

IV. MEDICAL ASSISTANT EDUCATION MEETINGS

The committee commented favorably on the Blue

Shield meetings with Medical Assistants conducted by the Physician Relations staff. The committee observed that these meetings are beneficial to both the physician and Blue Shield which ultimately benefits the members with better service.

A meeting of the committee has been scheduled to take place subsequent to the current series of District meetings. The Senior Citizen Program, national account contracts and relative value schedules will be the primary topics.

H. R. SCHMIDT, M.D., *Chairman*

CHILD WELFARE

R. L. Dreher, Salina, Chairman; M. J. Blood, Wichita; R. D. Boles, Dodge City; M. S. Boyden, Lawrence; W. H. Crouch, Topeka; D. R. Davis, Emporia; F. A. Gans, Salina; T. C. Hurst, Wichita; A. C. Irby, Fort Scott; G. F. Jordan, Jr., Wichita; W. F. McGuire, Wichita; E. A. Martin, Parsons; E. T. Olson, Newton; P. T. Schloesser, Topeka; R. N. Shears, Hutchinson; C. J. Winter, Jr., Kansas City; T. E. Young, Topeka.

The committee held one meeting in Salina, Kansas, in November, 1961. At that time the committee discussed the problem of unmet needs of handicapped children in the State of Kansas. The committee reviewed the results of a questionnaire previously mailed to 400 Kansas physicians asking specific questions regarding the number of handicapped children seen, the number of cases unable to pay for treatment and what was done in regard to such cases.

Using the results of this survey, the committee decided to look into the possibility of conducting a more extensive type of survey using hospital records as the source of information. The committee also asked that an attempt be made to determine whether or not there were either public or private funds for such a project or whether a public or private agency could be found which would agree to conduct a research project of this type.

In March, 1962, Dr. J. A. Budetti, chairman of the Committee on Conservation of Hearing and Speech, Dr. W. H. Crouch, chairman of the Perinatal Welfare Committee, and I appeared before the Public Health Committee of the Kansas Legislative Research Council to discuss House Concurrent Resolution No. 21. Briefly, Resolution No. 21 directs the Kansas Legislative Council to make a study for the purpose of determining the advisability of the enactment of legislation which would provide for the creation of a council for the purpose of coordinating programs for handicapped children. Other interested public and private agencies also testified before the Public Health Committee. At this time, we are hopeful that such a council will be recom-

mended by the Public Health Committee to the Kansas legislature in 1963.

We have been asked to offer our suggestions as to handicapping conditions which should come under the consideration of such a cooperative council and make recommendations as to which state agencies might be included and which private organizations might be considered in an advisory capacity. It is further hoped that upon the formation of such a council a survey of the needs of handicapped children in the State of Kansas will be conducted.

R. L. DREHER, M.D., *Chairman*

CONSERVATION OF EYESIGHT

M. S. Lake, Salina, Chairman; B. J. Ashley, Topeka; E. J. Bribach, Atchison; L. L. Calkins, Kansas City; M. A. Carter, Wichita; C. A. Crockett, Kansas City; J. E. Hill, Arkansas City; D. O. Howard, Wichita; C. T. McCoy, Hutchinson; H. E. Morgan, Newton; H. L. Patterson, Larned; W. M. Scales, Hutchinson; E. T. Siler, Hays; D. P. Trimble, Emporia.

The committee has been active by correspondence and telephone among each other and with Mr. Ebel.

A meeting of the committee was held in Kansas City on December 6, 1961.

An exhibit is to be prepared for the meeting of the Kansas Medical Society with Dr. L. L. Calkins, Chairman.

A sub-committee for proposed driver's license standards is composed of Drs. Hill, Ashley and Lemoine.

There is to be a meeting of the committee on April 2 at the University of Kansas Medical Center.

MAX S. LAKE, M.D., *Chairman*

CONSERVATION OF HEARING AND SPEECH

J. A. Budetti, Wichita, Chairman; C. W. Armstrong, Salina; R. E. Bridwell, Topeka; H. R. Draemel, Salina; E. K. Enns, Newton; E. S. Gendel, Topeka; C. L. Gray, Wichita; W. P. McKnight, Wichita; E. E. Miller, Pittsburg; R. G. Montgomery-Short, Halstead; V. R. Moorman, Hutchinson; W. D. Pitman, Pratt; G. O. Proud, Kansas City.

Chief accomplishment of the 1961 to 1962 year was the implementation of the referral cards for reporting of hearing loss as prepared by the committee in the previous years with the cooperation of the Department of Public Instruction and the Board of Health. These cards report the audiogram findings showing hearing loss when tested by the school or public health nurse. The cards report the findings to the physician and require a response from him indi-

cating his otologic findings and hearing assessment both to the school and to Topeka. The card is very simple and requires merely check marks denoting the recommendations of the physician as to the future management of the child.

Incidentally, the recent Legislative Session cut out the funds which the Department of Public Instruction had utilized for printing of the cards. Prompt action by Committee members stimulated the restoration of the funds so that further cards could be printed to continue their distribution.

The Committee was able to evaluate the first group of completed referral cards. Analysis indicates that the cards will be a big help to both the schools and to the vital statistics studies of the Medical Society, Department of Public Instruction, and Department of Public Health.

The following criticisms have evolved: (1) Inadequate distribution.—This is necessarily limited by the inadequate funds permitting only limited printing of the cards. As a result the cards were restricted to those school audiologists who are recognized as properly qualified. (2) Cards are too technical for the average M.D.—Responses do NOT require an audiogram by the physician if other satisfactory methods are used. Methods of evaluation of the hearing must be competent enough to permit efficient classification of the student. (3) Cards can be improved.—Agreed, as soon as funds permit printing of improved versions.

Second in importance was the committee's search for methods of case-finding and parent education in the pre-school child as young as one to two years of age. Still under discussion are methods of distribution of pamphlets as well as the format of such pamphlets for parent education. This is being worked out in cooperation with the Bureau of Child Research of the University of Kansas as well as the Division of Maternal Health and Child Welfare of the Department of Health.

The committee established preliminary contact with the chairman of the Sub-Committee on Hearing in Children of the American Academy of Ophthalmology and Otolaryngology Committee on Conservation of Hearing. It is hoped that their field studies can be brought to Kansas as part of the National Survey.

The committee recognizes and highly approves the current study by the Legislative Research Council of the Legislature regarding the advisability of extending the Crippled Children's Commission's activity to include hearing loss as a handicapping disease requiring their attention and support. The committee recognizes the need of indigent children in both the diagnosis and treatment of the partially handicapped child as distinguished from the totally deaf. In addition there is an undetermined need for support in the educational training and possible equipment with

prosthesis such as hearing aids. Two of the committee members personally appeared before the Council in March to present the views of the physician in this regard.

The committee is seeking ways to acquaint all the physicians in the State of Kansas with the school referral card on hearing and to promote into acceptance by the physicians insofar as possible. Plans are under way for personal visits to the various County Medical Societies if invitations from the county groups can be stimulated.

The committee has analyzed and approved local conservation of hearing programs as planned by the Wellington Department of Education. Such advanced and technical research programs can establish guide lines for the entire state and the Wellington group was commended for their cooperation with the State Medical Society through its Committee on Conservation of Hearing.

The committee has initiated a study of speech therapy in the state by receiving analytical reports from two of its non-medical associate members, Dr. June Miller of Kansas University Medical Center; and Dr. Martin Palmer of the Institute of Logopedics.

The committee is encouraging the establishment of courses for audiologists in the Department of Public Education, The State Board of Health, in industrial locations, and in doctors' offices. Two such courses in methods in audiometric testing will be offered this semester in Topeka and Salina under the auspices of the Speech and Hearing Programs of the Division of Special Education of the Department of Public Instruction, plus a two week workshop in such methods to be offered by Fort Hays College in June.

JOSEPH A. BUDETTI, M.D., *Chairman*

CONTROL OF CANCER

C. R. Openshaw, Hutchinson, Chairman; N. W. Anderson, Topeka; J. P. Berger, Wichita; G. L. Campbell, Arkansas City; W. G. Cauble, Wichita; A. M. Cherner, Hays; A. G. Dietrich, Newton; J. C. Dysart, Sterling; L. S. Fent, Newton; A. A. Fink, Topeka; W. A. Grosjean, Winfield; W. J. Kiser, Wichita; J. R. Kline, Wichita; M. V. Laing, Kansas City; C. H. Miller, Parsons; N. C. Nash, Wichita; D. C. Reed, Wichita; L. W. Reynolds, Hays; R. H. Riedel, Topeka; D. S. Ruhe, Kansas City; P. H. Schraer, Concordia; B. E. Stofer, Wichita; L. E. Vin Zant, Wichita; J. W. Welch, Halstead; H. M. Wiley, Garden City.

The Committee for the Control of Cancer of the Kansas State Medical Society met during October, 1961 in Wichita.

A new film being made available by the American Cancer Society, entitled "*Life's Story*" was viewed by the committee. This film discusses the value of proctosigmoidoscopy in the detection of neoplastic diseases of the lower intestinal tract and is presented

from the lay viewpoint for presentation to lay audiences. It was felt by the committee that the subject was presented in a clear and interesting way and was in good taste. Approval was granted for public showings, provided (as is always the custom with such films presented by the American Cancer Society) that a physician be in attendance to discuss questions that may arise.

Through cooperation of the American Cancer Society, Kansas State Board of Health, University of Kansas Medical Center and the committee, cytology kits were mailed during November to the general membership of the State Medical Society as well as doctors of osteopathy, as a means of promoting more widespread use of the "Pap" smear in the early diagnosis of uterine cancer. The pamphlet accompanying the kit, prepared by the departments of Gynecology and Pathology of the Medical Center, was particularly noteworthy.

The Teenage Smoking Program of the American Cancer Society, as previously approved by the committee has had good distribution and acceptance throughout the state, and has been moderately successful in stimulating thought among the younger age group about the ultimate effects of cigarette smoking.

After considerable discussion on the subject at the October meeting, some headway was achieved in the matter of cancer registries, the committee going on record as favoring the reinstatement of the Cancer Registry of the State Board of Health, as previously conducted.

A review of materials available to physicians from the American Cancer Society suggests that full usage of these materials is not being made by Kansas physicians. The committee would like to encourage practitioners to make more effective use of the literature available from the office of the Kansas Division, American Cancer Society, a list of which can be obtained from their office: 825 Tyler, Topeka.

C. R. OPENSHAW, M.D., *Chairman*

CONTROL OF TUBERCULOSIS

P. R. Carpenter, Kansas City, Chairman; A. L. Ashmore, Wichita; E. A. Baude, Topeka; R. M. Brooker, Topeka; J. A. Butin, Chanute; R. I. Canuteson, Lawrence; L. H. Coale, Kansas City; R. F. Conard, Emporia; J. K. Fulton, Wichita; E. C. Hwa, Newton; In Sung Kwak, Norton; J. L. Morgan, Emporia; J. M. Mott, Topeka; G. W. Nice, Topeka; C. Pokorny, Halstead; F. A. Trump, Ottawa; P. H. Wedin, Wichita.

The Committee on the Control of Tuberculosis of the Kansas Medical Society has met twice during the past year, August 27, 1961, and March 4, 1962. Both meetings were held at the Jayhawk Hotel, Topeka, Kansas, and were well attended.

As stated in the report of 1961, this group recom-

mended strongly that the State Board of Health's recent change of policy limiting their tuberculosis sputum examinations to cultures only be reviewed. This was done and the Board of Health will issue a statement by letter in the near future to the physicians in Kansas, that smear examinations of sputum for acid fast organisms will be done for diagnosis and emergency cases.

The school tuberculin skin testing certification program has moved progressively forward. Now it has extended to 13 counties. This is a voluntary service providing skin testing to schools upon their request. This requires a 95 per cent participation in the skin testing program and follow-up on the part of the students, school employees and teachers for certification. The major obstacle for certification in the schools tested has been the lack of interest and cooperation on the part of the school employees and teachers. Because of their unwillingness to allow themselves to be screened, a number of different units have not received certification. Action taken toward an attempt to alleviate this problem will be discussed in the following paragraph. Regarding the skin testing program, it is felt more help will be needed from local physicians and nurses in carrying out this program.

The absence of legislation requiring the school teachers, food handlers and people in similar situations to have tuberculosis screening examinations has again been discussed. It was brought to our attention that in one school, in a tuberculosis prevalent area, about 30 per cent of the school personnel did not volunteer to participate in the program. The resolution passed by the House of Delegates of the Kansas Medical Society, "That the Kansas Medical Society recommend to local school boards that all school personnel, including teachers, be required to have a physician's statement as to freedom from communicable tuberculosis as evidenced by tuberculosis skin test and/or chest x-ray, followed by clinical evaluation—this to be done annually thereafter" was again reviewed. This resolution was also submitted to the State Hotel and Restaurant Association together with a copy to the League of Kansas Municipalities.

It was recommended this same resolution be forwarded to the State Parent Teachers Association, the State Parent Teachers Organization, the Kansas State Teachers Association and to the administrators of various private schools and junior colleges located in Kansas. A questionnaire will accompany this recommendation to determine if any tuberculosis screening procedures are required in these various institutions.

One of the major projects of this committee during the past several years has been the establishment and development of chest clinics throughout the public health districts in the state of Kansas under the auspices of the Kansas State Board of Health. As you know, there was a \$40,000 legislative appropriation

included in the Board of Health's budget directed toward establishment of these clinics on the recommendations from this Society. These functioning clinics are now established and have been operating efficiently in Kansas City, Kansas, Topeka and Salina. These clinics serve the neighboring county areas as delineated by public health districts. The out-patient clinics at Chanute and Norton have maintained their operation as before. There are minor problems and difficulties which are being worked out as these clinics proceed, but on the whole, they are considered to be quite successful. According to protocol in establishment of these clinics, it has been necessary to obtain the full cooperation and sanction of the county medical society in the county in which the clinic is to be established before this can be done. For this reason, clinics have not been established in Wichita and Dodge City. A more thorough examination of the tuberculosis problem in these areas is anticipated in order to determine the exact needs of a chest service to the people of these districts.

PAUL R. CARPENTER, M.D., *Chairman*

DEFENSE BOARD

L. S. Nelson, Sr., Salina, Chairman; C. M. White, Wichita; J. A. McClure, Topeka.

The Defense Board has, during the past year, made a serious effort to inform the profession of Kansas of all the legal implications attendant upon the practice of medicine. We were helped by the generosity of The Editorial Board of THE JOURNAL OF THE KANSAS MEDICAL SOCIETY in allowing the material to be published in the January issue of the JOURNAL. Mr. Oliver Ebel rendered most valuable assistance in screening and arranging the material.

The problem of "Informed Consent" was most carefully assayed, after a Kansas Supreme Court decision. Mr. Kirk Dale, our learned attorney, presented after careful study a "Consent" form which could be used as a guide for preparation of one suited to their own purposes. We can only hope that through these efforts malpractice actions will be minimized and our insurance rates lowered.

L. S. NELSON, SR., M.D., *Chairman*

DIABETES

B. M. Matassarini, Wichita, Chairman; M. L. Bauman, Wichita; R. E. Bolinger, Kansas City; J. E. Crary, Topeka; N. M. Jenkins, Salina; T. J. Luellen, Wichita.

The chairman did not find it necessary to call a committee meeting during the year 1961 as the matters which came to him were minimal and handled easily by correspondence.

Recent correspondence from Sedgwick and Paola

Counties indicates that these counties anticipate activity with Diabetic groups and possible detection drives this coming fall. Therefore, it is anticipated that the committee will have major problems confronting it in the immediate future.

BENJAMIN M. MATASSARIN, M.D., *Chairman*

EMERGENCY MEDICAL CARE

H. H. Hyndman, Wichita, Chairman; G. L. Ashley, Chanute; K. F. Bascom, Manhattan; F. C. Beelman, Topeka; R. W. Blackburn, Council Grove; G. L. Gill, Sterling; A. J. Horejsi, Ellsworth; C. C. Hunnicutt, Sabetha; N. M. Jenkins, Salina; D. S. Klassen, Newton; J. T. Mott, Topeka; N. H. Overholser, El Dorado; G. E. Paine, Hutchinson; O. F. Prochazka, Liberal; R. G. Rate, Halstead; R. H. Robinson, Wichita; R. E. Speirs, Dodge City; J. F. Thurlow, Hays; D. P. Trees, Wichita.

No meeting of the Emergency Medical Care Committee was held this year, however, a great deal of work has been done in conjunction with a national program known as "Medical Self Help." This is a program developed by the Public Health Service, the Office of Civil Defense Mobilization, with the American Medical Association serving in an advisory capacity.

Late in 1961 representatives of state medical societies, boards of health, state civil defense offices and departments of public instruction attended a meeting in Battle Creek, Michigan, to learn about this program. Governor John Anderson appointed an Advisory Council composed of representatives of the above mentioned groups to study this program and make recommendations in regard to its implementation in Kansas. I was appointed chairman of this council by the Governor. Four meetings of the Advisory Council have been held and a pilot course is nearing completion in Topeka. Upon completion of this course, a report will be submitted to the Governor as to the desirability of conducting similar "Medical Self Help" courses throughout Kansas.

We have purposely refrained from calling the Emergency Medical Care Committee together until the Advisory Council has had an opportunity to critique this course. Depending upon the results of this pilot course, the Emergency Medical Care Committee may eventually wish to recommend this program to the Kansas Medical Society for endorsement.

H. H. HYNDMAN, M.D., *Chairman*

ENDOWMENT

C. V. Black, Pratt, Chairman; R. M. Mathews, Overland Park; R. A. Nelson, Wichita; R. J. Ohman, Dodge

City; J. L. Perkins, Hutchinson; J. W. Randell, Marysville; R. Schrepfer, Kansas City; F. L. Smith, Jr., Colby; C. C. Underwood, Emporia.

At the State Meeting in Wichita, May 1961, it was our privilege to present a check for about \$14,700.00 to Dr. Arden Miller, Dean of the University of Kansas Medical School. This was from the A.M.E.F., representing contributions from the medical profession. There has been an increase in the contributions for 1961 over the preceding years. Nationally, the American Medical Education Foundation and the Education Research Foundation of the A.M.A. have been combined. It will now be known as the A.M.A.-E.R.F. committee. Gifts, as in the past, may be earmarked for a specific medical school, or for a specific purpose. The scope of the endeavors of the committee are as follows: Financial Aid to Medical Schools; Fellowship Program in Medical Journalism; Research Grants for Workers in Medical Research; Study for Perinatal Mortality and Morbidity; Loans to Medical Students, Interns and Residents; Honors and Scholarship Programs. For every dollar set aside as a guarantee by this committee, the private banking industry will loan \$12.50 at interest not to exceed 6 per cent simple interest. This is to be repaid at the end of medical school, or internship, or residency. Sharpe-Dohme has agreed to match the first \$100,000.00 set aside in this fund. There has been an increase in the "In Memoriam" gifts. A sizable fund was set up "In Memoriam" to Dr. Glover. The Woman's Auxiliary have also increased their efforts this year.

Send your contributions to A.M.A.-E.R.F., 535 N. Dearborn, Chicago 10, Illinois.

C. V. BLACK, M.D., *Chairman*

HISTORY

R. R. Melton, Marion, Chairman; J. F. Barr, Ottawa; H. C. Clark, Wichita; A. W. Corbett, Emporia; O. W. Davidson, Kansas City; R. D. Grayson, Overland Park; J. G. Hughbanks, Independence; I. A. Koenke, Halstead; R. H. Major, Kansas City; H. P. Palmer, Scott City; R. A. Schwegler, Lawrence; G. S. Voorhees, Leavenworth.

The History Committee did not meet this year because of a conflict in available meeting dates. For this reason, there will be no report of the committee in this issue of the KANSAS MEDICAL SOCIETY JOURNAL. It is hoped that the committee will be able to meet prior to the Annual Meeting in Kansas City in order that any resolutions to the House of Delegates may be ready at that time.

R. R. MELTON, M.D., *Chairman*

HOSPITALS

W. E. Grove, Newton, Chairman; G. B. Athy, Columbus; H. G. Bayles, Fredonia; W. M. Campion, Liberal; M. D. Christensen, Kiowa; J. D. Colt, Manhattan; M. C. Eddy, Hays; D. L. Evans, Manhattan; F. R. Frink, Lawrence; E. R. Gelvin, Concordia; E. T. Gertson, Atwood; J. D. Gough, Chanute; G. F. Gsell, Wichita; R. H. Hill, Meade; C. C. Hunnicutt, Sabetha; G. H. Keene, Wichita; D. B. Parker, Ness City; H. B. Russell, Great Bend; C. D. Snyder, Winfield; E. B. Struxness, Hutchinson; R. E. White, Garnett.

The Committee on Hospitals, during the past year, has continued to work on the program for standardization of hospitals throughout the state. One meeting was held, the attendance at which was limited by the weather. A second meeting was scheduled and cancelled because of weather.

The final adoption of the plan must await joint action of the Committee on Hospitals of the Medical Society and a committee of the hospital administrators. We hope to have this accomplished in the near future.

WILLIAM E. GROVE, M.D., *Chairman*

INDUSTRIAL MEDICINE

J. F. Lance, Jr., Wichita, Chairman; V. D. Alquist, Baxter Springs; W. L. Anderson, Atchison; N. C. Bos, Hutchinson; J. A. Budetti, Wichita; A. S. J. Clarke, Prairie Village; C. L. Francisco, Kansas City; W. L. Good, Mission; J. J. Hovorka, Emporia; C. A. Isaac, Newton; C. M. Lessenden, Topeka; F. L. Loveland, Topeka; R. H. Moore, Lansing; F. A. Moorhead, Neodesha; A. R. Mueller, Leavenworth; P. C. Nohe, Kansas City; W. F. Powers, Wichita; H. L. Regier, Kansas City; E. C. Sifers, Kansas City; R. W. Urie, Parsons; C. L. White, Great Bend.

The chairman of this committee, along with Mr. James Imboden, has held several meetings without calling the entire committee together at one session. It was felt that this was not necessary because of conditions beyond our control.

It has been previously recommended to the Workmen's Compensation Commission that they accept the Relative Value Schedule previously adopted by the Kansas Medical Society, but the new Relative Value Schedule by the Kansas Medical Society in February of 1961 has not been available to recommend any changes here. We have been assured by the director of the Workmen's Compensation Commission that when the director is ready to make any changes we will be so advised and our cooperation and help will be requested, but until such a time that they consider any changes they have requested our holding in abeyance any recommendations. It would appear as if this situation were going to be clarified and much progress can be expected here in the near future.

J. F. LANCE, M.D., *Chairman*

LEGISLATION

N. L. Francis, Wichita, Chairman; (Executive Committee plus A.M.A. Delegates).

As provided by the constitution, the Legislative Committee is composed of the members of the Executive Committee. No special called meetings of the Executive Committee were made for a legislative meeting since this was a period in which there was the interim session of the legislature. This committee in meeting as an Executive Committee, did discuss the implementation of the Kerr-Mills bill, the development of a satisfactory Coroner's law, the presentation of a bill so that physicians and other self-employed individuals could incorporate for tax purposes, the present status of the Healing Arts Bill and other areas which we should support in the 1963 session of the legislature. This has been a year, primarily, of development for the 1963 legislative session, as far as legislative bills are concerned.

NORTON L. FRANCIS, M.D., *Chairman*

MATERNAL WELFARE

L. E. Woodard, Wichita, Chairman; A. H. Baum, Dodge City; D. L. Berger, Mission; E. C. Brandsted, McPherson; R. M. Carr, Junction City; H. R. Elliott, Pittsburg; H. M. Floersch, Kansas City; H. M. Foster, Hays; E. S. Gendel, Topeka; D. E. Gray, Topeka; R. G. Heasty, Manhattan; J. G. Kendrick, Wichita; D. S. Klassen, Newton; J. G. Lee, Jr., Kansas City; E. A. Martin, Parsons; O. L. Martin, Salina; C. P. McCoy, Wichita; M. D. Morris, Topeka; F. F. Nyberg, Wichita; E. S. Rich, Newton; W. R. Roy, Topeka; R. Sohlberg, Jr., McPherson; J. C. Schroll, Hutchinson; E. F. Steichen, Lenora; D. L. Traylor, Emporia; H. L. Wilcox, Lawrence; D. H. Wood, Pittsburg.

The objective of the Maternal Welfare Committee through the years has been towards the reduction of death due to childbirth. The ultimate in success would be a state maternal death rate of zero. This, of course, has not been achieved; but through the years, a constant improvement had lowered the Kansas rate to 1.8 deaths per 10,000 live births in 1960. The year 1961 saw a slight increase to 2.7 deaths per 10,000 live births. The committee, through its continued investigations of maternal deaths, review, and suggestions for improvement of patient care, hopes to see a reversal of last year's trend in the coming year.

Deaths per year and rates per 10,000 live births for Kansas and the U. S. are shown below:

<i>Maternal Deaths</i>		<i>Rate Per 10,000 Live Births</i>		
DATE	NUMBER	NUMBER	RATE	RATE
	KANSAS	U. S.	KANSAS	U. S.
1950	27	2,960	6.1	8.3
1960	12	13,360	1.8	3.2
1961	18	(not available)	2.7	(not available)

Meetings: In March and October, the committee met and reviewed a total of 18 maternal deaths. These deaths were previously investigated by members of the committee. Committee members have, with rare exception, been well received and assisted by attending physicians in these investigations. It should be emphasized that this cooperation is greatly appreciated and no intent of censure of any physician is intended.

A Guide for Standards of Hospital Obstetric Practice has been under study for two years. Sections for use in this guide are in the process of compilation.

The committee also reviewed the findings of the Cervical Screening program conducted in Dickinson County in 1960. The state laws pertaining to contraceptives, abortion, sterilization, and adoption were reviewed and discussed briefly.

The two studies below, in tabulated form, were reported to the committee and may be of interest to the members of the society.

CAUSES OF MATERNAL DEATHS FOR A FIVE-YEAR PERIOD

1956-1960 in Kansas

Total Deaths	88
Direct	
Hemorrhage	32
Infection	18
Toxemia	12
Vascular Accidents	4
Anesthesia	3
Other	2
Indirect	
Cardiac	4
Metabolic Disease	2
Vascular Disease	2
Other	1
Non-Related	
Accidental	2
Blood Dyscrasia	1
Malignancy	1
Suicide	1

EXTENT OF PRENATAL CARE IN RELATION TO MATERNAL DEATHS

1957-1961

Maternal Deaths

First Trimester	38%
Second Trimester	30%
Third Trimester	11%
At Delivery	21%
Not Known	0

(Maternal Deaths, five-year period 1957-1961 77
Total Births—one-year period 50,839)

This past year, the committee has been extremely active in completing case studies for review, and this has been greatly appreciated. The committee has an exceptional record of attendance to its meetings and

members all seem vitally interested in keeping studies and reviews current. Dr. Evalyn Gendel, Assistant Director of Maternal and Child Health, the State Board of Health, has been of vital assistance in the organization and detail work and receives the thanks of every member of the committee.

L. E. WOODARD, M.D., *Chairman*

MEDICAL ASSISTANTS

H. L. Hiebert, Topeka, Chairman; W. M. Campion, Liberal; C. D. Davenport, Hoisington; C. A. Isaac, Newton; H. P. Jones, Lawrence; S. C. McCrae, Salina; R. H. Moore, Lansing; R. C. Polson, Great Bend; L. F. Schmaus, Iola; F. L. Smith, Jr., Colby; J. R. Twinem, Olathe.

The Medical Assistants Committee met on several occasions with the Executive Committee of the Kansas Medical Assistants Society. At such meetings the Society's committee acts only in an advisory capacity. Serving in this capacity, the committee assisted in developing a Kansas Medical Assistants Circuit Course program. These circuit courses are conducted by the University of Kansas Extension and sponsored by the Kansas Medical Society, the Kansas Medical Assistants Society, the University of Kansas Extension and the Kansas State Board for Vocational Education.

Approximately 90 medical assistants attended the first circuit course in Wichita on February 24 and 25. Approximately 40 medical assistants attended the circuit course in Hays, Kansas, on March 10 and 11. The final circuit course will be held in Parsons on April 14 and 15, and it is expected that approximately 25 medical assistants will participate. This type of course has been extremely well received and is in keeping with the ultimate goal of the Kansas Medical Assistants Society for certification of its members. Subjects taught in these two-day courses are as follows: Medical Ethics and Etiquette; Sterilization Procedures and Care of Equipment; Law and Economics of Medicine; Communications for Medical Assistants; and Credits and Collections. Each attendant receives a permanent copy of the material as presented in the course.

Members of the committee were invited to participate in these circuit courses, and a number of the committee have attended these courses which have been held throughout the state.

The committee will shortly be cooperating again and developing future training courses for medical assistants in the State of Kansas.

H. L. HIEBERT, M.D., *Chairman*

MEDICAL ECONOMICS

K. L. Graham, Leavenworth, Chairman; P. D. Adams, Osage City; E. G. Anderson, Wichita; J. N. Blank, Hutchinson; H. L. Bogan, Baxter Springs; J. K.

Griffith, Winfield; G. E. Kassebaum, El Dorado; J. A. McClure, Topeka; M. B. Miller, Topeka; B. A. Nelson, Manhattan; L. S. Nelson, Jr., Salina; C. A. Nystrom, Cawker City; E. B. Scagnelli, Dodge City; R. P. Schellinger, Emporia; F. G. Schenck, Burlingame; R. C. Stanley, Paola; C. H. Steele, Kansas City; T. F. Taylor, Phillipsburg; W. K. Walker, Sedan.

The Kansas Medical Society's Committee on Medical Economics has again been quite active during the year 1961-62. We have surveyed all of the insurance programs which have been in force through the Medical Society. We are satisfied with their performance.

The committee is arranging to have published at no cost to the Medical Society, a booklet which will list all of our group insurance policies. This booklet will be distributed to the membership, and in particular to the newer members of the State Medical Society.

We have been solicited repeatedly in the last two or three years to consider the advisability of setting up a group retirement program. This may have some merit, particularly if enabling legislation is passed by the Kansas Legislature which will allow an incorporation of professional associations. We would appreciate any comments from the general membership and/or the House of Delegates concerning the membership's desire for this.

We have held one meeting with the Kansas Chapter of the National Council of Health Insurance Underwriters. During this meeting and its predecessors, we have been urged to adopt as Kansas State Medical Society Health Insurance Forms, a form identical with the Nation-wide Health Insurance Council's forms. These forms have been endorsed by the American Medical Association. It is our feeling that this should be done. We look forward to a time when the Economics Committee of the Kansas Medical Society and the Kansas Health Insurance Council will be able to iron out many of the mutually irritating problems which arise between doctors and Health Insurance Underwriters. We feel that our annual meetings with them create a climate from which such cooperation can grow.

We would therefore like to present the following resolutions:

I. WHEREAS, The A.M.A. has endorsed the National Health Insurance Council's accident and health forms, and

WHEREAS, The Kansas Medical Society values the increasing friendship with the Kansas Health Insurance Council, and

WHEREAS, The National Health Insurance Council's forms are nearly identical with the current Kansas Medical Society forms, therefore let it be

Resolved, That the House of Delegates of the Kansas Medical Society shall approve and endorse the utili-

zation of the National Health Insurance Council blanks in place of the current Kansas Medical Society Insurance forms, and further be it

Resolved, That the printer for our current State Health Insurance form be asked to revise our forms to coincide with the National Health Insurance forms.

II. WHEREAS, It would be advantageous to the physicians of the State of Kansas to be permitted to incorporate under Kansas' laws, and

WHEREAS, Such incorporation would be to the advantage in tax matters in setting up Retirement Programs, and

WHEREAS, Such legislation is to be considered by the Kansas Legislature in the near future, and

WHEREAS, The Bar Association and other interested associations are promoting such legislation, let it be

Resolved, The Kansas Medical Society endorses the proposed legislation which would allow professional associations to incorporate under Kansas law.

III. WHEREAS, A retirement income program to be operated by the State Medical Society may be of some advantage to the practicing physicians in Kansas, and

WHEREAS, There may be considerable interest in such a program throughout the state, let it be

Resolved, That the executive secretary and his staff conduct a survey of the desires of the members of the Kansas Medical Society in order to direct the Economics Committee's actions, and determine whether there is sufficient interest in such a program to make it worthwhile.

KENNETH L. GRAHAM, M.D., *Chairman*

MEMBERSHIP ORIENTATION

K. L. Graham, Leavenworth, Chairman; J. O. Baeke, Overland Park; E. S. Brinton, Wichita; G. W. Craner, Parsons; J. H. McNickle, Ashland; R. H. O'Donnell, Ellsworth; R. H. O'Neil, Topeka.

The Membership Orientation Committee operated this year at some distance. The committee decided upon a selection of worthwhile materials which the members of the committee thought would be most useful to the doctor beginning in practice. We have to date mailed these packets to 39 new members of the Kansas Medical Society. In addition, we have prepared a letter welcoming our new members to the Kansas Medical Society. This is mailed by the councilor of each district to the members in his district. In addition these new members have received a letter of welcome from the president of the Kansas Medical Society.

It is our hope that, finances permitting, we will be able to procure in the future a booklet which will explain the Kansas Medical Society in some detail to each of our welcomed new members. However, at this time, we are a little embarrassed financially, and unless the House of Delegates sees fit to make an

appropriation for the preparation and distribution of such a booklet, these plans must wait for some future date.

KENNETH L. GRAHAM, M.D., *Chairman*

MENTAL HEALTH

J. A. Grimshaw, Topeka, Chairman; A. J. Adams, Wichita; H. V. Bair, Parsons; A. P. Bay, Topeka; E. P. Carreau, Wichita; I. C. Case, Topeka; O. R. Cram, Jr., Larned; J. A. Dunagin, Topeka; D. E. Eckart, Hutchinson; W. J. Gardner, Halstead; D. C. Greaves, Kansas City; L. W. Hatton, Salina; A. M. Isaac, Newton; R. L. Meadows, Topeka; J. S. Menaker, Wichita; F. C. Newson, Wichita; W. F. Roth, Jr., Kansas City; W. C. Schwartz, Manhattan; W. A. Warren, Wichita; H. G. Whittington, Lawrence.

The Committee on Mental Health held one meeting in March, 1962. Twelve persons were present. At the meeting, the committee discussed Standards for Community Mental Health Centers as established by the Ad Hoc Committee of the Kansas Psychiatric Society. The committee took action to approve and support these standards as set up by the Kansas Psychiatric Society. The committee felt that in setting up mental health clinics, persons working with an individual clinic should have the assistance and guidance of the State Board of Social Welfare on an initial and continuing basis.

The committee heard a report by Dr. F. Carter Newson on the proceedings at the Sixth Annual Conference of Mental Health representatives of State Medical Associations. The committee was advised that the conference is now planning the first annual mental association conference on mental health and mental illness to be held in Chicago on October 4, 5 and 6, 1962. Participating personnel at the conference will be physicians from all disciplines, nurses, social workers, psychologists, educators, social scientists, clergy, legislators, judges and attorneys, science writers, research workers, A.M.A. Woman's Auxiliary, other voluntary groups, state and federal agencies. It is the intention of the Mental Health Committee to work toward interesting as many persons as possible from the above mentioned groups to attend this conference. The committee will ask the House of Delegates to authorize the president of the Kansas Medical Society and the chairman of the Mental Health Committee to attend this conference. The committee will further ask that the House of Delegates endorse the attendance of as many of the Kansas Medical Society attending this conference as possible.

The committee discussed the final report of the Joint Commission of Mental Illness and Health re-

garding the position statement with interpretive commentary and commendation as adopted by the Council of the American Psychiatric Association. It was the opinion of the committee that a subcommittee should be appointed to further study the final report of the Joint Commission and report back on its recommendations. Drs. I. Clark Case, chairman; DeMerle E. Eckart, Horace G. Whittington and Richard L. Meadows were appointed to this committee.

The committee discussed certain areas pertaining to drivers licensing and offered the services of this committee to the Safety Committee, particularly in the area of prescribed drugs as they pertain to the efficiency of the driver and the problem of the person who repeatedly is involved in automobile accidents. It was felt that those problems require further study.

The committee learned of the possibility of some type of state cooperative council which would involve all the state organizations and interested persons working in the field of mental health. The committee took no action regarding this but is interested in working with other groups to determine whether or not a council of this type can be developed in Kansas.

The executive office was requested to keep the committee as well informed as possible on legislative matters of interest to the Mental Health Committee.

In addition to the above agenda, the committee discussed a number of resolutions currently being studied by the Legislative Research Council and the need for a better understanding of the mental health field. The committee will also be working on a clear definition as to what good mental health is and is tentatively thinking in terms of developing a program on mental health for presentation to district medical society meetings in the State of Kansas.

J. A. GRIMSHAW, M.D., *Chairman*

NECROLOGY

O. R. Clark, Topeka, Chairman; D. E. Gray, Topeka; R. Greer, Topeka; D. Lawson, Topeka; J. A. Segerson, Topeka.

The Committee on Necrology submits the following list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates:

<i>Name and Address</i>	<i>Age</i>	<i>1961</i>
Rowe F. Bisbee, M.D., <i>Wichita</i>	40	Feb. 19
Noble P. Sherwood, M.D., <i>Lawrence</i>	78	Feb. 21
Melvin Martin, M.D., <i>Newton</i>	73	Feb. 23
Ira I. Smith, M.D., <i>Atlanta</i>	84	Feb. 24
Joseph C. Shaw, M.D., <i>Topeka</i>	91	Feb. 25
Thomas A. Lowery, M.D., <i>Wichita</i>	86	Mar. 2

Lennel I. Wright, M.D., <i>Wichita</i>	59	Mar. 10
John A. Crabb, M.D., <i>Topeka</i>	91	Mar. 17
J. Ethan Barker, M.D., <i>Kansas City</i>	85	Mar. 31
Justin J. McDonald, M.D., <i>Bartlesville</i>	69	May 16
Charles N. Johnson, M.D., <i>Wichita</i>	75	May 26
Robert C. Gribble, M.D., <i>Dodge City</i>	48	June 1
Dale D. Vermillion, M.D., <i>Goodland</i>	56	June 12
Victor E. Chesky, M.D., <i>Halstead</i>	76	June 22
Ernest D. Williams, M.D., <i>Kansas City</i>	90	July 8
Grover G. Whitley, M.D., <i>Winfield</i>	68	July 10
George A. Westfall, Jr., M.D., <i>Halstead</i>	42	July 22
Alpha D. Updegraff, M.D., <i>Valley Center</i>	83	July 28
Harry L. Church, M.D., <i>Pittsburg</i>	67	Aug. 10
George J. P. Gish, M.D., <i>Frontenac</i>	84	Aug. 15
Leonard S. Wager, M.D., <i>Florence</i>	88	Aug. 26
Harold M. Glover, M.D., <i>Newton</i>	73	Sept. 5
Ernest M. Seydell, M.D., <i>Wichita</i>	79	Sept. 23
Herbert C. Martin, M.D., <i>Coffeyville</i>	45	Sept. 24
Harry J. Davis, M.D., <i>Topeka</i>	63	Oct. 21
Andrew L. Berggren, M.D., <i>Chetopa</i>	81	Oct. 26
John J. Tretbar, M.D., <i>Stafford</i>	76	Oct. 26
Edwin P. Deal, M.D., <i>Hutchinson</i>	61	Nov. 2
Charles F. Taylor, M.D., <i>Norton</i>	70	Dec. 22

1962

Arthur W. Fegtly, M.D., <i>Wichita</i>	76	Jan. 9
R. Grover Schoonhoven, M.D., <i>Manhattan</i>	77	Jan. 17
Arthur H. Haynes, M.D., <i>Sabetha</i>	69	Jan. 23
T. Walker Weaver, M.D., <i>Wichita</i>	76	Jan. 29
William O. Nelson, M.D., <i>Lawrence</i>	76	Feb. 10
Robert C. Kimbrough, Jr., M.D., <i>Lawrence</i>	49	Mar. 7

ORVILLE R. CLARK, M.D., *Chairman*

NOMINATING COMMITTEE

T. P. Butcher, Emporia, Chairman; C. M. Barnes, Seneca; C. W. Miller, Wichita; L. S. Nelson, Sr., Salina; H. N. Tihen, Wichita.

The Nominating Committee, as selected by the House of Delegates last May, submits to the House of Delegates the following slate of candidates:

The Committee endorsed the following slate of officers. For the office of:

President-Elect

H. St. Clair O'Donnell, M.D., Ellsworth. Born in 1893. Graduated from Washington University School of Medicine in 1917. Has held various offices in the Kansas Medical Society and has been a councilor.

First Vice President

J. C. Mitchell, M.D., Salina. Born in 1913. Graduated from Kansas University School of Medicine in 1938. Has held various offices and has served as councilor.

Second Vice President

G. E. Burket, Jr., M.D., Kingman. Born in 1912. Graduated from Kansas University School of Medicine in 1937. Has been secretary and chairman of Society committees.

D. B. McKee, M.D., Pittsburg. Born in 1896. Graduated from Kansas University School of Medicine in 1928. Has been councilor and a member of the Board of Health.

J. L. Morgan, M.D., Emporia. Born in 1915. Graduated from University of Pennsylvania School of Medicine in 1940. Has been councilor and chairman of committees.

H. P. Palmer, M.D., Scott City. Born in 1897. Graduated from Kansas University School of Medicine in 1929. Has been councilor and has served on committees.

L. W. Reynolds, M.D., Hays. Born in 1910. Graduated from Ohio State University Medical School in 1934. Has been councilor and president of Kansas Blue Shield.

Secretary

Leland Speer, M.D., Kansas City, Kansas. Born in 1912. Graduated from Kansas University School of Medicine in 1936. Is currently serving as Secretary.

Treasurer

J. L. Lattimore, M.D., Topeka. Born in 1894. Graduated from Fort Worth School of Medicine in 1918. Is currently serving as Treasurer.

A.M.A. Delegate

L. R. Pyle, M.D., Topeka. Born in 1901. Graduated from Rush Medical College in 1928. Is currently serving as A.M.A. Delegate.

Alternate A.M.A. Delegate

G. R. Peters, M.D., Kansas City. Born in 1912. Graduated from Kansas University School of Medicine in 1937. Is currently serving as Alternate A.M.A. Delegate.

T. P. BUTCHER, M.D., *Chairman*

PATHOLOGY

J. E. Johnson, Kansas City, Chairman; R. J. Eilers, Kansas City; A. A. Fink, Topeka; C. A. Hellwig, Halstead; I. Joffe, Kansas City; W. E. Luedtke, Emporia; W. J. Reals, Wichita; R. J. Rettenmaier, Kansas City; C. J. Weber, Salina.

The Pathology Committee is holding its next meeting on April 1, 1962 at the Broadview Hotel in Emporia, Kansas. An additional report on that meeting will be sent in writing to the House of Delegates for its meeting on April 30-May 2.

The following agenda will be discussed:

1. Emergency benefits to patients with Blue Shield in relation to benign and malignant skin lesions.
2. Progress report on proposed changes in the Coroner's Law or System; recommendations for educational program and literature for distribution to medical and non-medical coroners of the State.
3. Laboratory Aide Program.
4. Status of Cytology Program and response to kit distribution.
5. Recommendations regarding commercial laboratory schools.
6. Recommendations regarding lay laboratories.
7. Inspection and accreditation of blood banks in the State.
8. Any other matters of interest to the Committee and the Society.

Some members of this committee attended and testified at a recent hearing before the State Superintendent of Public Instruction with regard to the issuance of a permit to one William D. McDougall, president of the Mid-West University of Medical and X-Ray Technology, Inc., to solicit funds, tuition, fees, etc. in advance. These members testified in opposition to the issuance of a permit on the grounds that this school would be unable to provide the course of instruction it advertised, and that it used misrepresentation of facts in its efforts to secure funds in advance for tuition, fees, etc. The hearing was held on February 14, 1962. On March 2, 1962, Mr. Adel F. Throckmorton, State Superintendent of Public Instruction wrote a letter to William D. McDougall stating that a permit would not be issued to the Mid-West University of Medical and X-Ray Technology, Inc.

JOHN E. JOHNSON, M.D., *Chairman*

PERINATAL WELFARE

W. H. Crouch, Topeka, Chairman; H. Aldis, Fort Scott; R. D. Boles, Dodge City; V. E. Bolton, Kansas City; M. D. Christensen, Kiowa; J. M. Graham, Leavenworth; G. F. Jordan, Jr., Wichita; H. P. Jubelt, Manhattan; R. C. Knappenberger, Wichita; O. L. Martin, Salina; R. E. Pfuetze, Topeka; L. R. Pyle, Topeka; P. T. Schloesser, Topeka; R. N. Shears, Hutchinson; T. E. Young, Topeka.

The Perinatal Welfare Committee has met twice during the year and collected and studied the data and figures reported by the Kansas Birth Certificates and coordinated it, gleaning some useful information

which was referred to the various hospitals of the state for study by local committees.

The committee has planned a joint meeting with the Pediatric and Obstetrical societies at the time of the State Meeting, the program of which is in this JOURNAL.

In the future, the committee plans to develop a three-day course in conjunction with the Maternal Welfare Committee and Perinatal and Maternal Mortality Study. The committee has been active in the passage of a bill which protects mortality statistics and studies from alleviation when connected with the committee's study gleaned therefrom.

W. H. CROUCH, M.D., *Chairman*

POSTGRADUATE STUDY

C. R. Rombold, Wichita, Chairman; W. H. Algie, Kansas City; G. E. Burket, Jr., Kingman; M. H. Delp, Kansas City; D. B. Foster, Topeka; S. R. Friesen, Kansas City; B. C. Gradinger, Halstead; T. W. Graham, Leavenworth; G. C. Hutchinson, Hays; D. Lawson, Topeka; D. Lukens, Hutchinson; E. L. Mills, Wichita; E. J. Ryan, Emporia; C. T. Sills, Newton.

A meeting of the committee was held in Wichita on November 26, 1961. Dr. Delp, representing the Kansas University Medical School, requested that the Council of the State Society adopt a policy which would guide the administration of the Medical School in relationship to subsidization of teaching and research projects by pharmaceutical houses. The suggested policy was mailed to each member of the committee, which after some amendment, is now offered to the Council for action.

In recent years there has been an increasing practice of pharmaceutical houses to proffer funds to medical schools, medical societies, medical research organizations, etc. These funds are intended to be utilized in teaching, postgraduate courses, seminars on medical subjects, medical research, etc. These donations have been offered honorably as a means of advertising the companies, and by the ethical standards of the business community the practice is a thoughtful, helpful, and generous means of accomplishing its end.

Since the ultimate objective of the companies making the donations is to influence physicians to prescribe their products and since the ultimate source of these funds is from profits derived from the purchases made by patients for whom physicians have prescribed, the question arises if it is ethical for the profession to accept these donations.

RESOLUTION No. 1

WHEREAS, the individual earnings of the members of the medical profession are sufficient to provide the funds for their own postgraduate study, and

WHEREAS, the public in even this indirect method should not assume the subsidization of our post-graduate study, and

WHEREAS, unsubsidized teaching is more apt to be unbiased,

Be It Resolved, that the use of funds for teaching purposes contributed by businesses whose profits derive from professional services be considered a questionable ethical practice.

RESOLUTION No. 2

WHEREAS, medical research is conducted almost exclusively by non-profit organizations, and

WHEREAS, the public eventually reaps the advantage flowing from medical research, and

WHEREAS, the public at present and historically has subsidized medical research,

Be It Resolved, that non-profit medical research organizations may accept funds for research purposes contributed by businesses whose profits derive from professional services without question of ethical taint providing the project is carried on with scientific freedom: free of bias, partiality, interference, correction or dictation on the part of the donor; and providing that the results of the research project will become common knowledge.

CHAS. ROMBOLD, M.D., *Chairman*

PUBLIC RELATIONS

L. S. Nelson, Sr., Salina, Chairman; S. A. Anderson, Clay Center; V. M. Auchard, Lawrence; C. H. Benage, Pittsburg; T. P. Butcher, Emporia; E. W. Crow, Wichita; A. H. Dyck, McPherson; J. L. Lattimore, Topeka; J. W. Manley, Kansas City; G. Marshall, Colby; C. W. Miller, Wichita; R. H. O'Donnell, Ellsworth; L. W. Patzkowsky, Kiowa; J. R. Twinem, Olathe; W. O. Wallace, Atchison.

There have been several meetings of the Public Relations Committee and the avowed purposes of our activities have been twofold. First, we hoped to stimulate component societies to develop programs in medical citizenship which would present a truer picture of organized medicine than that held by so many people. Second, we had hoped to be able to make a start into the realm of politics to get our Kansas Legislature to study the cost of implementing the Kerr-Mills law.

Nearly 100 physicians attended a meeting held at Emporia, where Dr. Butcher and Dr. Benage gave excellent talks. Mr. Kirk Dale, our attorney, Mr. Joe Schmercek of the Farm Bureau, Mr. Adams from the Bell Telephone Company, and Mr. Bud Kilker from the State Chamber of Commerce all gave very fine talks. The results cannot be assayed at this time.

The items stressed were (1) Emergency call systems; (2) Grievance committees; (3) Improved Press, Radio and T.V. relations; (4) Medical Speakers

Bureau for lay groups; (5) The orientation of new members of the medical societies.

Finally, we are planning a combined meeting with the Kansas Chamber of Commerce, The Kansas Farm Bureau and The Kansas Medical Society presenting the subject "The Problems of the Aging Citizen." As this report is being written the plans are not yet complete. This meeting will be held on the campus of The University of Kansas and speakers of national prominence are now being contacted to make this a noteworthy event.

Your Chairman would like to thank the faithful members of this committee who have given unselfishly of their time to make this committee function.

L. S. NELSON, SR., M.D., *Chairman*

RELATIONS WITH BAR ASSOCIATION

G. E. Burket, Jr., Kingman, Chairman; L. G. Allen, Jr., Kansas City; J. O. Baeke, Overland Park; T. R. Hamilton, Kansas City; J. B. Jarrott, Hutchinson; C. S. Joss, Topeka; W. G. Parker, Hoxie; E. J. Ryan, Emporia; J. A. Segerson, Topeka; K. E. Voldeng, Wellington.

This committee has had two meetings this year to date. The first was an organizational meeting at which time subjects of possible common interest of both physicians and attorneys were discussed. From this list was chosen the most important subjects to be brought before a joint meeting of this committee and a similar committee from the Kansas Bar Association.

This joint meeting was held on November 19, 1961. Each segment presented their list of subjects and they were found to be almost identical. The following subjects were discussed and acted upon:

1. The Impartial Medical Witness. Because of congestion in the courts occasionally through the increase of personal injury cases, some consideration has been given in certain parts of the country to a plan whereby the court may appoint an impartial medical witness from a list of names submitted by the Medical Society. After some discussion the motion was made, seconded, and passed that the Impartial Medical Witness plan be submitted before the governing bodies of the Kansas Medical Society and the Kansas Bar Association for consideration and possible approval of this change in the procedure of operation of Kansas courts.

2. The Professional Code of Kansas for Physicians and Attorneys. This code which was adopted by the House of Delegates of the Kansas Medical Society in May of 1958 was discussed. Both segments of the joint committee felt that the code should again be brought before the membership of their respective organizations. The physicians' segment passed a motion that this document be republished in THE JOURNAL OF THE KANSAS MEDICAL SOCIETY and that reprints in a size suitable for mailing be prepared and sent to each member of the

Medical Society and that the code be included in the brochure mailed to new physicians of Kansas.

3. A Speaker from the Bar Association on a Future Medical Circuit Course. The medical profession has for some time conducted circuit courses in four western and four eastern communities of Kansas. These are well attended by physicians in the area, and because they are sponsored by the University of Kansas School of Medicine and the Medical Society, Category I credit under rules of the American Academy of General Practice is given for attendance at these meetings. This committee voted unanimously to submit to the Postgraduate Committee of the Kansas Medical Society the request that in a future circuit course a medical-legal presentation be offered and that the speaker should be an attorney well qualified for such teaching.

4. Joint Meetings of County Bar Associations and Medical Societies. The committee recommended to each County Medical Society and to each County Bar Association that at least one joint meeting be held, at which time a formal program be presented.

5. Medical-Legal Programs for County Bar Associations and for County Medical Societies. It was the opinion of the committee that a program might, at least annually, be presented before each County Bar Association and each County Medical Society on a medical-legal topic.

The committee recommended the following topics as appropriate for inclusion in a program:

1. Medical reporting
2. Testimony before the court
3. Malpractice
4. Disability rating

There is a firm feeling by the members of the committee that a good start has been made and a foundation laid for excellent relations with the Kansas Bar. They presented to the Kansas Medical Society a fine, cooperative, liaison group. If future committees will build on this foundation such problems that the two groups have with medical reporting, testimony before the court, malpractice, disability ratings, etc. will be solved.

It is the hopes of the committee that one more combined meeting can be held before the first of May. If this is possible, a supplementary report will be presented to the House of Delegates.

GEORGE E. BURKET, JR., M.D., *Chairman*

RURAL HEALTH

C. R. Svoboda, Chapman, Chairman; P. D. Adams, Osage City; V. E. Brown, Sabetha; J. G. Claypool, Howard; F. G. Freeman, Pratt; M. F. Frederick, Hugoton; R. E. Grene, La Crosse; W. A. Harms, Hesston; H. W. Hiesterman, Quinter; P. H. Hostetter, Manhattan; R. L. Krause, Goessel; E. E. Long, Humboldt; R. P. McCarthy, Bethel; D. Marchbanks, Hill City; L. W. Patzkowsky, Kiowa; D. R. Pierce, Topeka; J. G.

Rowlett, Paola; J. Scanlon, Horton; M. E. Schulz, Russell; R. R. Snook, McLouth; E. F. Steichen, Lenora; M. H. Waldorf, Jr., Greensburg; H. O. Williams, Cheney; D. H. Wood, Pittsburg; E. D. Yoder, Denton.

The committee on Rural Health had completed the formation of a Kansas Rural Health Council to get lay persons interested in the problems of medicine. A meeting of the committee with the council is scheduled for April 8.

Physician placement remains a problem. Everybody wants one for their Main Street but nobody wants to pay for one. During the year several small towns were fortunate to obtain physicians as Bushton, Holyrood, and Minneapolis in central Kansas have done. A number of physicians in the western part of the state have relocated in larger cities to the east.

Two year residencies in General Practice have been started at the University of Kansas Medical Center. Also Dr. Jesse D. Rising has been made Dean of Rural Health at K. U.

The big event for the midwest will be the third Regional Rural Health Conference at Des Moines, Iowa, on May 18 and 19. Its theme is "Good Rural Health—Our Nation's Wealth." Your chairman attended the planning meeting in Des Moines last October 11. All physicians are invited to Des Moines this spring.

CHARLES R. SVOBODA, M.D., *Chairman*

SAFETY

A. C. Eitzen, Hillsboro, Chairman; T. G. Duckett, Hiawatha; J. A. Grove, Newton; C. D. Hensley, Jr., Wichita; A. E. Hiebert, Wichita; J. E. Hill, Arkansas City; C. T. McCoy, Hutchinson; G. R. Maser, Mission; A. L. Nichols, Hiawatha; J. H. A. Peck, St. Francis; R. R. Snook, McLouth; H. E. Snyder, Winfield; H. B. Sullivan, Jr., Shawnee; R. P. Weltmer, Beloit; R. C. Ye, Kansas City.

The Safety Committee has no report to submit to the JOURNAL at this time, however, meetings of the committee will be held during the next six or seven months to determine what this committee would like to recommend to the 1963 legislature in regard to drivers' licensing.

Any recommendations from this committee will be coordinated to complement and supplement recommendations already made by other committees of the Kansas Medical Society in regard to a better drivers' licensing law.

A. C. EITZEN, M.D., *Chairman*

STATE MEETING FORMAT

N. L. Francis, Wichita, Chairman; L. H. Leger, Kansas City; L. S. Nelson, Jr., Salina; J. L. Perkins, Hutch-

(Continued on page 173)



Personalities—IN KANSAS MEDICINE

Dr. George Osborne, Phillipsburg, has accepted a residency at the Denver General Hospital and will begin his work there in April. His family plans to join him in Denver in June.

Richard F. Conard, M.D., Emporia, has been elected chairman of the newly organized Emporia-Lyon County Joint Board of Health.

The possibility of a physical therapy unit in Douglas County was the topic of discussion at the February meeting of the Douglas County Medical Society. **Dr. Donald Rose**, who is a professor of physical medicine at the KU Medical Center, was guest speaker, and talked about the establishment of physical therapy units.

Dr. Donald E. McIntosh, Parsons, spoke at the February meeting of the Labette County Medical Society. He discussed the chemistry of body fluid and its relationship to health. **Dr. Charles F. Henderson** presided over the meeting.

Dr. Otto Ravenholt, City-County Health Director, Topeka, addressed the February meeting of District One, Kansas State Nursing Association, on the subject, "Our Patients' Present and Future Based Upon a Population Profile."

Among the speakers at the regional meeting of the American College of Physicians at Emporia in February were **William C. Menninger, M.D.**, president of the Menninger Foundation, Topeka, and **Dr. W. Clarke Wescoe**, Chancellor of the University of Kansas. **Dr. Phillip W. Morgan**, Emporia, was general chairman of the meeting, and **Dr. John L. Mor-**

gan, Emporia, served on the program committee. **Dr. Edward J. Ryan**, Emporia, was chairman of the Committee on Arrangements.

Dr. Lloyd H. Coale, associate in medicine on the faculty of the University of Kansas Medical Center, was guest speaker of the Paola Rotary Club at its February meeting.

William Kane, M.D., Hays, spoke at the Newman Club lecture meeting held in February at the Fort Hays State College Memorial Union.

The new Russell County health officer for 1962 is **Dr. Earl D. Merkel** of Russell.

E. A. McClintock, M.D., Topeka, has been elected to the Board of Directors and appointed medical director of the Pioneer National Life Insurance Company.

Dr. William A. Zimmerman, Chief Clinical Psychologist, Osawatomie State Hospital, has resigned to accept a position as chief psychologist for the Southeastern Psychiatric Clinic, Lincoln, Nebraska. He began his duties there April 1.

The Kansas University Medical Alumni recently appointed **Dr. Laurence S. Nelson, Sr.**, Salina, chairman of their fund drive which will be used to support teaching in basic medical Sciences at Kansas University. Dr. Nelson has also been named a consultant assisting in a study of the Kansas Health Department. The study is to determine needs of a public health program and the organization and resources necessary to carry it out.

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

RECENT ACQUISITIONS

- Beckman, H. Year Book of drug therapy. Year Book Co. 1962.
Brest, A. N. Hypertension—recent advances. Lea & Febiger. 1961.
Cherniack, R. M. Respiration in health & disease. Saunders. 1961.
Ciba Foundation. Mechanism of action of water soluble vitamins. Little Brown. 1961.
Conn, H. F. Current therapy. Saunders. 1962.
Epstein, B. S. The spine. Lea & Febiger. 1962.
Holt, L. E. Pediatrics. Appleton. 1962.
Hughes, W. W. Traumatic lesions of peripheral vessels. Thomas. 1961.
King, E. R. A manual for nuclear medicine. Thomas. 1962.
Soffer, L. J. Human adrenal glands. Lea & Febiger. 1961.

MONOGRAPHS AVAILABLE IN LIBRARY

Public Health

- Anderson, G. W. Communicable disease control. Macmillan. 1956.
Coburn, A. F. The epidemiology of hemolytic streptococcus during World War II in the U. S. Navy. Williams & Wilkins. 1949.
Hare, R. Pomp and pestilence; infectious disease, its origins and conquest. Philosophical Library. 1955.
Hilleboe, H. E. Preventive medicine; principles of prevention in the occurrence and progression of disease. Saunders. 1959.
Mullett, C. F. The bubonic plague and England. Univ. of Kentucky Press. 1956.
Weinstein, L. The practice of infectious disease. Blakiston Div. 1958.
Perkins, J. J. Principles and methods of sterilization. Thomas. 1956.
Blatz, H. Radiation hygiene handbook. McGraw-Hill. 1959.
Sister Bernadette. Life of a student nurse. Meyers. 1961.

Nursing

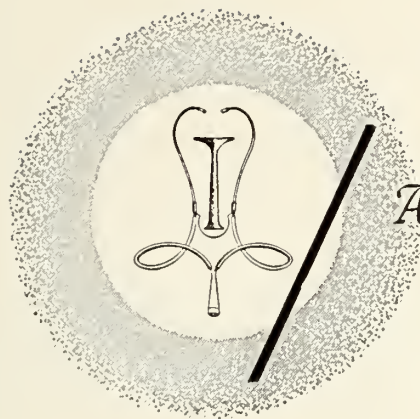
- Breckinridge, Mary. Wide neighborhoods. Harper. 1952.

- Bredow, M. Handbook for the medical secretary. McGraw-Hill. 1959.
Bredow, Miriam. The medical assistant. Blakiston. 1958.
Bridgman, M. Collegiate education for nursing. Russell Sage Foundation. 1953.
Brody, W. Personnel administration in public health nursing. Mosby. 1951.
Brown, E. L. Nursing for the future. Russell Sage Foundation. 1948.
Brownell, K. O. The practical nurse. Saunders. 1959.
Curran, J. A. Better nursing. University of Washington Press. 1951.
Deming, D. The practical nurse. Commonwealth Fund. 1947.
Dooley, M. S. Pharmacology and therapeutics in nursing. McGraw-Hill. 1953.
Eliason, E. L. Surgical nursing. Lippincott. 1950.
Felter, R. K. Surgical nursing. Davis. 1952.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

- Finer, H. Administration and the nursing services. Macmillan. 1952.
Freeman, R. B. Public health nursing practice. Saunders. 1950.
Funsten, R. V. Calderwood's orthopedic nursing. Mosby. 1957.
Gidseg, L. Home nurse's handbook. Funk. 1951.
Gilbert, R. The public health nurse and her patient. Harvard University Press. 1951.
Goodnow, Minnie. Nursing history. Saunders. 1953.
Graham, S. Care of the surgical patient. Blakiston. 1960.
Hansen, H. F. Encyclopedic guide to nursing. Blakiston. 1957.
Hansen, Helen. A review of nursing. Saunders. 1952.
Harmer, B. Textbook of the principles and practice of nursing. Macmillan. 1955.
Hayes, W. J. Human relations in nursing. Saunders. 1955.
Hetherington, H. W. Nursing in prevention and control of tuberculosis. Putnam. 1950.
Huffman, E. K. Manual for medical record librarians. Physicians' Record Co. 1955.
Hughes, E. C. Twenty thousand nurses tell their story. Lippincott. 1958.

(Continued on page 173)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

A postgraduate course on the basic physiology and psychology of work relating to cardiovascular patients has been scheduled for June 18-22, at the Tudor Arms Hotel, Carnegie at East 107th St., Cleveland, Ohio.

The objective of the course, to be conducted as a workshop limited to 150 participants, will be to explore further the problem of assessing medically the physical types of activity suited to an individual with heart disease, the factors involved and how to determine them.

The course is being conducted jointly under auspices of the American Heart Association, the Cleveland Area Heart Society, Heart Disease Control Program of the U. S. Public Health Service, and Western Reserve University. Laboratory facilities of the University and affiliated hospitals will be utilized for field visits during the sessions. This practical course will include lectures, demonstrations, individual participation and testing, problems and group discussion.

Those wishing to attend the course or obtain further information may write to Herman K. Hellerstein, M.D., Cleveland Area Heart Society, 1689 East 115th Street, Cleveland 6, Ohio.

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology and physiology on June 8-9, 1962 at the University of Kansas Medical Center, Kansas City, Kansas. Satisfactorily completed applications for examination should be submitted at least 30 days prior to date of examination. Application blanks and other information can be obtained from Dr. L. C. Heckert, Secretary of the Kansas Board of Basic Science Examiners, Pittsburg, Kansas.

"Medicine in the Atomic Age" will be the

theme of the scientific program for the 111th Annual meeting of the American Medical Association June 24-28 in Chicago.

General scientific meetings will be presented on Inhalation Therapy; Clinical Cardiology and Anticoagulant Therapy; Diagnostic Problems and Exfoliative Cytologic Methods; Tissue Transplantation; Inflammatory and Ulcerative Diseases of the Small Intestine; Teenagers' Problems; Mental Health, and Nuclear Medicine. The Multiple Disciplinary Research Forum will be repeated at the Chicago meeting.

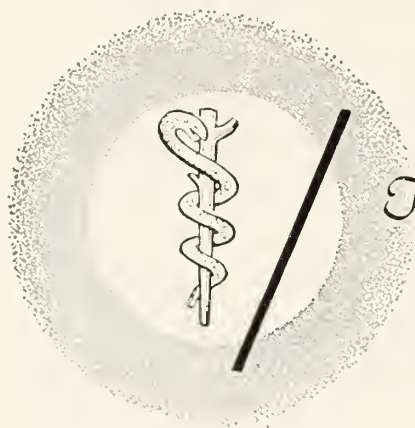
All of the scientific and industrial exhibits and all meetings will be held in Chicago's giant new auditorium and convention hall, McCormick Place, on the shore of Lake Michigan a short distance south of the Loop.

The general meeting on Inhalation Therapy will be sponsored by the American College of Chest Physicians with Dr. Kenneth K. Keown of the University of Missouri Medical Center, Columbia, serving as coordinating secretary. The participating sections are Anesthesiology; Diseases of the Chest; Pathology and Physiology; General Practice, and General Surgery.

The American Heart Association will be co-sponsors of the general meeting on Clinical Cardiology and Anticoagulant Therapy. Drs. Wright R. Adams of Chicago and Samuel P. Martin of the University of Florida School of Medicine at Gainesville are the coordinating secretaries. Participating sections are Internal Medicine; Experimental Medicine and Therapeutics; Diseases of the Chest; Pediatrics; General Practice; Preventive Medicine; Orthopedic Surgery, and Pathology and Physiology.

Coordinating secretaries for the general session on Diagnostic Problems and Exfoliative Cytologic Methods are Drs. Lemuel C. McGee of Wilmington, Del.,

(Continued on page 174)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

The small Osborne County town of Natoma recently found out just how blind our Kansas law can be. For some time, Natoma has been trying industriously to attract a medical doctor. To this end, citizens there built a \$35,000 office for two doctors. So far, not one doctor has accepted the invitation.

Recently, however, a Dr. D. Adman Refik answered the call with a query on whether the town would consider using his services if he were to move there from his home in Iraq. Natoma replied that it wouldn't—not because of ingrained hatred or opposition, or because it didn't figure Dr. Refik is a good doctor. It's just that Kansas law forbids foreigners to practice medicine in Kansas.

I, of course, have no knowledge of Dr. Refik's medical capabilities. And I don't believe the Kansas Legislature has, either. The point is, although many small Kansas communities—and some cities—have a crying need for qualified doctors, those who lack citizenship are dismissed without hearing.

No one presumes that our United States medical schools are unparalleled in the training of doctors. In fact, Dr. John Higginson, a British subject, is allowed to teach our future doctors at the University of Kansas Medical School—and allowed to accept a lifetime cancer research grant. But under Kansas law he's forbidden to perform a tonsillectomy.

Foreign doctors are permitted to practice medicine in state hospitals, and I doubt whether anyone would argue seriously that there is any difference in the bodily ills of state hospital patients and private ones.

Strangely, the law which foists this ridiculous situation on us isn't a product of our territorial days, where you might expect a degree of unenlightened planning. This law, part of the Healing Arts Act, was passed by the 1957 Legislature.

Parts of this law, of course, are essential. They are designed to give some assurance that citizens of this state are treated by qualified, competent physicians. Other parts of the law, like the one that forbids advertising, certainly may belong in the code of ethics of the American Medical Association, but I can see no reason for cluttering up the statute book with them. We have no law against attorneys advertising. Yet few, if any, do because advertising is prohibited by their code of ethics.

I submit that the state law which forbids non-citizens to practice here only adds to the already existing doctor shortage. It creates an economic control where none is needed.—*Ron Kull, Topeka Sunday Capital-Journal, December 24, 1961.*

THE HEALTH INSURANCE STRUGGLE

While the American Medical Association is rated as a tight organization, it is to be seen how much compliance there will be to a recent suggestion from the group's hierarchy at Chicago.

A.M.A. board of trustees called on doctors generally to lower their fees to aged patients of modest means, whether they are covered by health insurance or not. The suggestion followed announcement of A.M.A. support for a nationwide Blue Shield program of uniform surgical and medical benefits for persons 65 years of age or older. At a cost of \$3 per month, full coverage would be given couples with incomes of \$4,000 per year or less.

These moves are apparently aimed at countering the movement in Congress to enact the King-Anderson bill, supported by the Kennedy Administration. This measure would finance some of the hospital and nursing home costs for the aged through increased

Social Security taxes. A.M.A. is adamant in opposition to such an enactment which it appraises as a step toward socialized medicine.

A.M.A. is trying to expand coverage on a private base which finds 53 per cent of all persons over 65, or nine million of them, protected by voluntary health insurance plans.

The struggle between the government approach and the private approach continues without any sign that the Administration intends to compromise anywhere. But if the A.M.A. can sell its members on modest fees for the aged while private coverage continues to expand, it is clear that the role of the government through Social Security will become less and less as time passes.—*Wichita Evening Eagle and Beacon*, February 10, 1962.

From the Stacks

(Continued from page 170)

- Hull, E. Medical nursing. Davis. 1960.
 Ks. St. Nurses' Assn. Survey report of the nursing needs and resources in Kansas. 1958.
 Kansas WPA. Lamps on the prairie. Kansas Nurse Association. 1942.
 Karnosh, L. J. Psychiatry for nurses. Mosby. 1940.
 Kelly, W. Practical nursing today. Putnam. 1957.
 Klemme, R. M. Nursing care of neurosurgical patients. Thomas. 1949.
 Knapp, M. Cancer nursing. N. Y. St. Department of Health. 1950.
 Macgregor, F. M. Social science in nursing. Russell Sage Foundation. 1960.

Councilor Reports

(Continued from page 154)

SEVENTEENTH DISTRICT

The councilor wishes to report from the 17th councilor district, which is composed of twelve southwest Kansas counties.

During the year a new doctor has located in Syracuse, Kansas and one in Tribune, Kansas. Two doctors have retired so the membership remains the same.

Plans for expanding and remodeling the hospital in Syracuse have been made. A new hospital is under construction in Johnson. Accreditation from the Joint Commission of Accreditation was received by St. Catherine Hospital, Garden City, Kansas, this year following extensive remodeling and a new addition.

Some outstanding programs were held during the year, one by Dr. G. Kenneth Lewis, formerly of Garden City, now a plastic surgeon in Chicago, and

a district banquet that was well attended to hear Dr. Kermit Krantz, chairman of the Department of Obstetrics and Gynecology at the University of Kansas Medical Center.

There has been much interest by the doctors in the district in regard to Federal Medical legislation and many talks have been given at the "grass roots" level by the doctors in this area.

It has been a pleasure to be councilor for the 17th district. I wish to express gratitude for excellent cooperation during the past year.

JOHN O. AUSTIN, M.D., *Councilor*

Committee Reports

(Continued from page 168)

inson; R. K. Purves, Wichita; J. E. Roderick, Salina; E. J. Ryan, Emporia; R. Sohlberg, Jr., McPherson; R. C. Tozer, Topeka.

This committee met and reviewed the experience of the previous meeting held in Wichita. It then approved the detailed plans for the 1963 annual session to be held in Salina. An invitation was received from one of the pharmaceutical companies to pay the expenses for one of the scientific speakers at the annual session. Considerable discussion was held on this question and it was decided that this should be referred to the Council, who would have final action of this change of policy. It was recommended at this meeting that the commercial and scientific exhibits be retained at the Salina meeting on the same basis which they were held at the Wichita meeting. The committee further recommended that the giving of physical examinations for physicians during the annual session be made a permanent feature of each annual session. A satisfactory financial report of the 1961 annual session was presented and approved. The committee felt, that in general, a three day meeting was working out satisfactorily.

NORTON L. FRANCIS, M.D., *Chairman*

STUDY OF HEART DISEASE

L. E. Peckenschneider, Halstead, Chairman; M. S. Allen, Kansas City; D. R. Bedford, Topeka; J. W. Butin, Wichita; E. W. Crow, Wichita; C. W. Erickson, Pittsburg; L. H. Leger, Kansas City; D. Lukens, Hutchinson; P. W. Morgan, Emporia; R. F. Morton, Arkansas City; L. F. Schmaus, Iola; C. T. Sills, Newton; H. B. Stryker, Jr., Concordia; D. C. Wakeman, Topeka; C. J. W. Wilen, Manhattan.

The Study of Heart Disease Committee met in October 1961 at Emporia, Kansas. At that time the committee voted to approve a rheumatic survey to be

conducted by the Kansas Heart Association. Results of this survey are currently being tabulated.

The committee recommended to the Kansas Heart Association that local county medical societies in the northwest section of Kansas be polled by personal contact as to local society interest in a regional cardiac diagnostic clinic for indigent patients referred to the clinic by private physicians. At a later meeting of the Kansas Heart Association, this recommendation was discussed but was tabled for the present time.

L. E. PECKENSCHNEIDER, M.D., *Chairman*

Announcements

(Continued from page 171)

and G. Gordon McHardy of New Orleans. Participating sections are Preventive Medicine; Gastroenterology and Proctology; Obstetrics and Gynecology; Pathology and Physiology, and General Surgery.

The meeting on Tissue Transplantation is coordinated by Dr. John C. Wilson of Los Angeles. Participating sections are Orthopedic Surgery; Pathology and Physiology; General Surgery; Internal Medicine; Pediatrics, and Experimental Medicine and Therapeutics.

A schedule of four postgraduate courses to be presented throughout the country in the second quarter of 1962 has been announced by the American College of Physicians.

The courses, part of the A.C.P.'s postgraduate program are aimed at providing practicing physicians with current information on advances in internal medicine and related specialties.

The second quarter, 1962 courses and their directors are:

April 5-7, Course No. 11, **CURRENT CONCEPTS OF THE PHYSIOLOGY OF THE ENDOCRINES, ELECTROLYTES, AND THE KIDNEY**, to be held at The Bellevue Stratford Hotel, in conjunction with The American Physiologic Society and The University of Pennsylvania Department of Physiology, Philadelphia, Pa.; Daniel H. Simmons, M.D., and Charles R. Kleeman, M.D., Co-Directors. Minimal Registration, 50; Maximal Registration, 500.

May, 14-16, Course No. 12, **FUNDAMENTAL AND APPLIED ASPECTS OF CARDIOLOGY**, Wayne State University College of Medicine, Detroit, Mich.; Richard J. Bing, M.D., F.A.C.P., Director. Minimal Registration, 40; Maximal Registration, 200.

May 21-25, Course No. 13, **THE NEUROLOGY OF DISEASES OF INTERNAL MEDICINE**, Harvard Medical School, Boston, Mass.; Raymond D. Adams, M.D., Director.

June 4-8, Course No. 14, **PSYCHIATRY FOR THE INTERNIST**, The Psychiatric Institute, University of Maryland School of Medicine, Baltimore, Md.; Ephraim T. Lisansky, M.D., F.A.C.P., Director.

The Thompson-Brumm-Knepper Clinic of St. Joseph, Missouri, has announced the 13th annual Dr. F. G. Thompson, Sr. lectureship. Dr. R. Gordon Douglas, Professor of Obstetrics and Gynecology at Cornell University Medical College, and Obstetrician and Gynecologist-in-chief at the New York Hospital, will speak on: "Infertility: Evaluation and Management."

This lecture will be given at 8:15 p.m. in the Thompson-Brumm-Knepper Clinic, on April 16, 1962.

The Flying Physicians Association and its Kansas chapter invite you to join and become active in both these organizations dedicated to furthering the safety and enjoyment of flying.

Tentatively scheduled for 1962 are fly-ins to Salina where the Air Force has promised a scientific program on Aerospace Medicine, and another indefinite fly-in for fun later. The national organization has 15 fly-ins scheduled for May 6 as a demonstration of the capability of the organization for mobilizing planes in the event of a disaster. The fly-in for this area includes the Oklahoma, Nebraska and Kansas chapters and is to meet at Ottawa. Plan to be there even though you are not a member.

The current president of the national F.P.A. is Robert O. Brown, M.D., of Atchison. Dues are \$3 annually for the state and \$10 for the national. For these dues you receive regular news letters and bulletins regarding items of pertinent interest to physician pilots, and are eligible for substantial savings on aircraft insurance written through the group.

For further information contact Weir Pierson, M.D., McPherson, or L. W. Bauer, M.D., 4818 W. 80th Street, Prairie Village, co-chairmen of the Kansas chapter.

Just as eating contrary to the inclination is injurious to the health, so study without desire spoils the memory, and it retains nothing that it takes in.

—Leonardo da Vinci

College Costs Call for Long Range Planning

Dreaming of sending a youngster through college? Most parents are, and many are planning to make their dreams come true.

If Saving is begun when a child is very young, it is not too difficult to finance four years of college. Saving through Savings Bonds is one of the easiest and best ways to make your dreams come true. The purchase each month of a \$25 Series E Savings Bond (for \$18.75) will return in 18 years about \$5,600. This much money, at present cost, will pay for four years at a state university or college, or any school where expenses are at an average level.

Four years of college now cost from \$4,000 to \$10,000, depending upon the type of school and where it is. For state universities and colleges, the average is around \$5,000 to \$6,000. Tuition, room, board and other necessities have been going up in recent years, and are likely to continue to do so.

But, someone may object, how do I know how much it will cost 18 years from now? The answer is: save all you can and you can accumulate most if not all of the costs of that coveted diploma, without which it has been getting increasingly harder to qualify for the better jobs in business and industry, and without which one cannot go into training for a profession.

What if you haven't started your college fund until the child is already in primary school? Well, you still have 12 years to get ready. Buy a \$50 E Bond for \$37.50 each month, and when your youngster is ready to go, you'll have one diploma paid for and a good start on another for a second child.

There is no safer way to save than buying U. S. Savings Bonds. You can't lose, for they are not subject to market fluctuations, and their rate of interest is guaranteed. If lost, stolen, damaged or destroyed from any cause, U. S. Savings Bonds are replaced by the Treasury, for records are kept of the registration of every bond in the names of owner, co-owner or beneficiary.

There are two automatic ways to save with Savings Bonds by simply signing your name, and letting the bank or your employer do the rest. One is the payroll savings plan "where you work." More than 8 million wage and salary earners use that plan to save without effort, today, and tens of millions have used it during the 20 years of the present Savings Bonds program. The other is the Bond-a-Month plan, "where you bank," for professional and other self-employed people and those whose employers do not offer the payroll deduction partial payment plan for buying bonds.

Wishful thinking won't send a boy or girl to college, much less through one. Parents must plan ahead and save for it, for in these days of stiff courses and strong competition for outside jobs it is a rare youngster who is able to work his way through college, even with a scholarship. Luckily, E bonds are especially designed to help Americans save up for the big things in their lives—and a college degree is one of the biggest in the life of a typical American parent.

HERE'S HOW E BOND SAVINGS ADD UP TO A COLLEGE EDUCATION

Find your child's age in the left hand column, read across and you'll see what you have to save monthly to buy that college education.

<i>Child's Age Now</i>	<i>Value of E Bonds at Age 18 Through Monthly Investment of</i>		
	\$18.75	\$37.50	\$75.00
6 months	\$5,480	\$10,960	\$21,920
2 years	4,857	9,713	19,426
4 years	4,079	8,159	16,318
6 years	3,359	6,717	13,435
8 years	2,689	5,378	10,756
10 years	2,066	4,131	8,263
12 years	1,486	2,973	5,946

Table from U. S. Savings Bonds Division, Treasury Department.

CANCER IN CHILDREN

Cancer in children has been increasing faster than in adults according to C. C. Dauer, M.D., Medical Advisor of the National Center for Health Statistics of the U. S. Public Health Service. In an article in *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians, Dr. Dauer pointed out that the mortality rate for cancer among children 1 to 4 years of age has more than doubled since 1930, and has tripled in those 5 to 14 years old. "This is a much greater percentage increase than has been observed in adults," he noted. How much of the increase is real and how much only apparent, stemming from greater diagnostic precision, has not been determined, he said.

Death rate from cancer or malignant neoplasms in children, however, is low compared with that of persons 45 years of age and older. "Cancer is one of the leading causes of death in children, ranking fourth in those 1 to 4 years of age and second in those 5 to 14 years old. About 10 per cent of deaths in the

former age group and 15 per cent in the latter are due to cancer, including leukemia," Dr. Dauer said.

HOW TO CHOOSE INVESTMENT ADVICE

All investors and potential investors would do well to recognize one key fact: it's extremely hard to be unemotional and objective about your own money, even after long years of experience in handling it. For this reason, obtaining the services of a good professional adviser may well be the most important—and profitable—investment you can make.

There are several groups of advisers from which you can take your choice, based upon your needs and personal preferences. They include investment counselors, brokers, some lawyers, printed services, mutual funds, and banks. No matter which type of adviser you choose, you must be sure that you will get investment advice that is *competent, continuous, personal, and unbiased*.

Competence can best be defined as a combination of integrity, experience and aptitude. The importance of integrity cannot be overestimated because in the field of finance there should be no compromise. As for experience, you obviously want someone who has had a reasonably long record as an investment adviser, or who has associated himself with others who have. Aptitude is somewhat difficult to evaluate, but "prosperous survival" is a good test: few advisers who lack aptitude can survive long, much less thrive, in this highly competitive field.

Unbiased service is essential; if there is a conflict of interest between you and your adviser, he cannot faithfully perform his duty. For example, if an adviser has securities for sale, and one issue carries with it a larger commission than another, he might be influenced to sell to the client the one which was more profitable for himself, even though the other stock might be more suitable for the client's portfolio. If he is paid on the basis of activity, it would take a strong-minded adviser indeed not to trade more than may be necessary. If his fee is based on a percentage of the profits, he might be inclined to take more speculative risks than he should.

To eliminate possible conflicts of interest, investment counselors will not sell securities or engage in the brokerage business; their sole compensation is the direct fee from the client. For example, the fee—which is tax-deductible—is a fixed percentage of the capital which the investor has entrusted to the company. The fee will go up only if the investor's capital increases.

Continuity of service is important because a port-

folio must be lived with; it cannot be successfully managed simply by taking an occasional look at it. A stock may have the brightest prospects in the world at the time of purchase, but industry conditions and the management of a company can both change rather quickly, and serious losses can result if stocks are not kept under constant review.

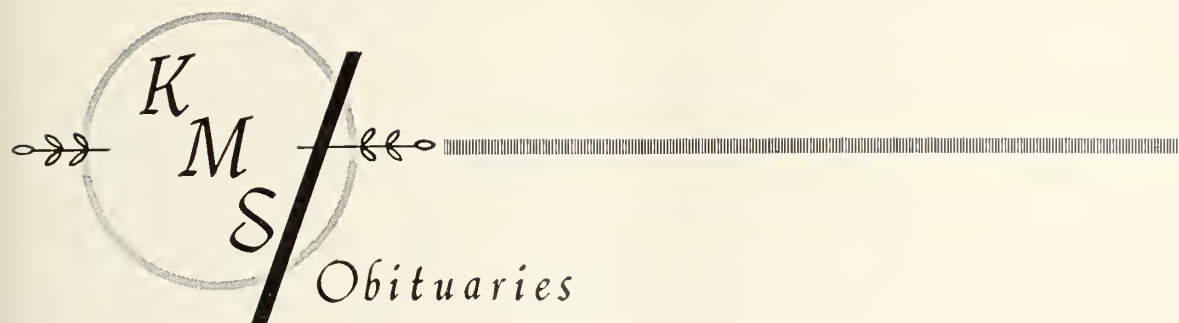
The personal element looms large in the thinking of a good investment adviser. Some investors have to live on the interest and dividends from their securities and therefore need maximum income; others, successful in a business or profession, are primarily interested in capital gains because true income from securities would put them in a higher tax bracket. These are the two extremes between which most accounts are found. The investment adviser must be the judge of how much to lean in one direction or the other.

Once you have found an adviser who is competent, unbiased, provides continuity of service, and is sensitive to your personal needs, you will have taken a giant step along the road to becoming a successful investor.

KANSAS STATE BOARD OF HEALTH TOPEKA, KANSAS			
Division of Preventable Diseases Division of Vital Statistics Kansas Morbidity Incidence			
Summary of Cases Reported in January, 1962 and 1961			
Diseases	1962 January	1961 January	January, 5-year Median, 1957-1961
Amebiasis	4	1	2
Aseptic meningitis	4	—	*
Brucellosis	4	2	9
Cancer	301	473	318
Diphtheria	—	—	—
Encephalitis, infectious	2	1	2
Gonorrhea	200	204	204
Hepatitis, infectious	88	111	31
Meningococcal, meningitis ..	2	3	3
Pertussis	—	4	4
Polio myelitis	—	—	—
Rheumatic fever	—	1	—
Salmonellosis	3	5	*
Scarlet fever	112	190	67
Shigellosis	2	28	3
Streptococcal infections	180	242	16
Syphilis	146	103	121
Tinea capitis	37	11	36
Tuberculosis	20	29	29
Tularemia	1	—	4
Typhoid fever	—	—	1

* Statistics on 5-year median not available.

Beginning with this issue, the JOURNAL will print the Kansas Morbidity Incidence and other pertinent data that may be submitted by the Kansas State Board of Health. It is felt that this will be of some aid to the physician in keeping abreast of epidemic outbreaks in Kansas.



R. C. KIMBROUGH, M.D.

Dr. Robert C. Kimbrough, Jr., 49, Lawrence, died March 7, 1962, at Lawrence.

Dr. Kimbrough was born at Madisonville, Tennessee, on October 12, 1912. He received his medical degree from Johns Hopkins University in 1937.

He was a staff physician on the medical staff at the Topeka Veterans Administration Hospital since October, 1960.

Survivors include his wife, Dr. Victoria Kimbrough, and four children.

W. O. NELSON, M.D.

Dr. William O. Nelson, 76, Lawrence, died February 10, 1962, at Kansas University's Watkins Memorial Hospital.

Born in Franklin County, Dr. Nelson received his medical degree from the Kansas City Medical School and did graduate work at Harvard University. At the time of his death, he was in practice with his son, Dr. Richard O. Nelson.

Dr. Nelson was a member of several medical associations, the Masonic Lodge, Kiwanis Club, and other civic organizations. He was a member of the Methodist church.

He is survived by his wife, two daughters and two sons.

The Kansas Medical Society—1961-1962

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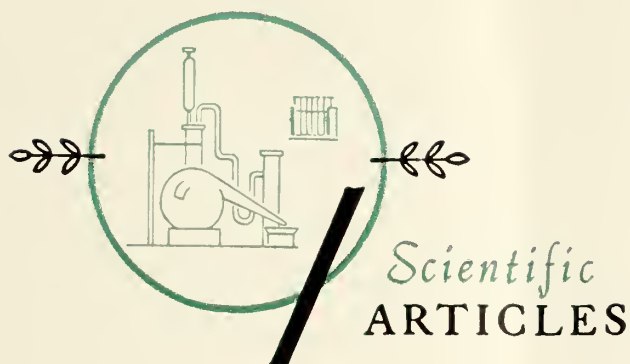
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Sex Hormones

Naturally Occurring and Synthetic—Their Activity and Uses

**JAMES C. WARREN, M.D., Ph.D. and
SARAH G. CHEATUM, A.B., Kansas City***

IN RECENT YEARS a great deal of information has accumulated on biosynthesis of natural sex hormones and the identification and quantitative analysis of their urinary metabolites in various disease states. With the demonstration of the effects of these compounds upon the control of ovulation, carcinoma, functional menorrhagia and hirsutism, the pharmaceutical companies have carried on extensive programs to provide synthetic compounds demonstrating biological activity when taken orally. At this point there is such a quantity of information, sometimes controversial, that an organization and review of these data is of value to the practitioner of medicine. This article represents an attempt at such an organization based upon review of the literature as well as personal experience in the Department of Obstetrics and Gynecology at the University of Kansas.

Basic to the understanding of the various natural and synthetic sex hormones to be discussed is a knowledge of the steroid nucleus. This basic structure as shown in Figure 1, is the 21-carbon skeleton with the rings designated by A, B, C, D and the appropriate numbers placed for the constituent carbon atoms.

Naturally Occurring Sex Hormones

The major naturally occurring sex hormones are indicated in Figures 2 and 3. Progesterone is synthesized and released by the corpus luteum and the placenta. The effects of this steroid on the development of a secretory type of endometrium and

its quiescent effect on uterine muscle as shown by Csapo^{1, 2} are now well known. The major naturally occurring estrogens are estrone, estradiol and estriol. The first two compounds are interconvertible in the

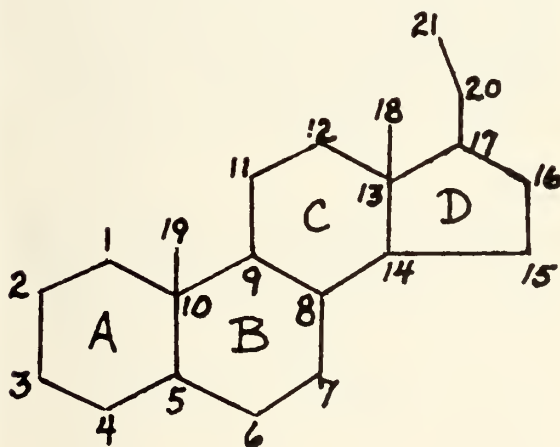


Figure 1. The basic 21-carbon steroid nucleus.

human, but once estradiol has been hydroxylated to estriol, it will be eliminated in this form. These steroids are synthesized in the ovary but may be minor products from the testes³ and the adrenal. It has been shown that urinary estrogen levels are sometimes increased in Cushing's syndrome.⁴ The naturally occurring androgens may be divided into two groups: those with and those without an oxygen function on the eleven carbon. Androstenedione and testosterone

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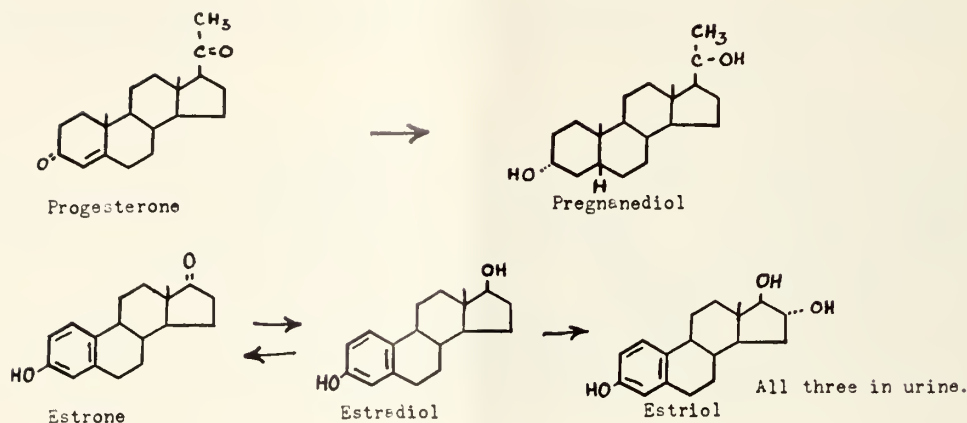


Figure 2. Natural progestins and estrogens with their urinary metabolites.

arise primarily from the testis although their synthesis and release by the ovary have been well documented,^{5, 6} particularly in abnormal situations. Dehydroisoandrosterone is synthesized exclusively or almost exclusively in the adrenal and it is on the basis of this compound that the Allen-Blue test⁷ was developed for the diagnosis of adrenal carcinoma. The 11-hydroxy and 11-oxy androgens are exclusively adrenal in origin and their androgenic potency is much less than those compounds without the 11 oxygen function.⁸

The urinary metabolites of these naturally occurring sex steroids are indicated in the same tables. They actually occur in the urine as water soluble glucuronides and sulfates although they are indicated in the tables as the free form. A major urinary metabolite of progesterone is pregnenediol and uri-

nary levels of this compound increase during the luteal phase of the normal menstrual cycle as well as during pregnancy.⁹

All three of the major estrogens occur in the urine, although estriol is the predominant one found. Estrogens are excreted in minimal amounts in the non-pregnant woman with daily excretion approximating 30 micrograms.¹⁰ Estrogen excretion increases in pregnancy, rising as much as 1,000 times the levels in the non-pregnant woman,¹¹ or up to 30 mg. per day.

The urinary metabolites of the androgenic compounds are loosely considered as a heterogeneous group referred to as "17-ketosteroids." This group may be further subdivided into the A, E, D, and 11-oxy fractions standing for androsterone, etiocholanolone, dehydroisoandrosterone, and 11-hydroxylated steroids.¹² The usual laboratory determination for these compounds, known as the Zimmerman reaction, measures all of them. There are two major situations to be noted in this reference. First, it has been recently demonstrated¹³ that dehydroisoandrosterone is the major precursor of all 17-ketosteroids that are not oxygenated in the 11 position. Secondly, androstenedione and testosterone, particularly the latter, are so potent biologically that only small amounts are required to produce marked masculinization. Therefore, analysis of urinary 17-ketosteroids may demonstrate little or no differences from the normal values in many cases of gonadal tumor or hyperplastic disease.¹⁴ This allows the adoption of a general rule that patients with adrenal hirsutism will have high urinary 17-ketosteroids and patients with ovarian hirsutism will have urinary 17-ketosteroids within normal limits or very slightly elevated.

Although 17-ketosteroids in the Stein-Leventhal syndrome are said to be normal, the work of Trace and McCall now indicates that they are really slightly elevated and will fall following successful wedge

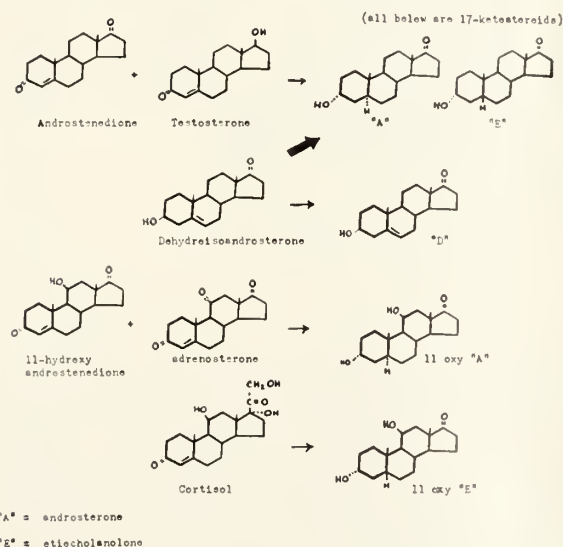


Figure 3. Natural androgens and their urinary metabolites.

resection. Present evidence indicates that this syndrome is associated with an abnormal ratio of FSH to LH with predominance of the latter.^{16, 17}

Synthetic Sex Hormones

A. Progestational Agents.

The major synthetic progestational agents are shown grouped beneath their parent substances in Figure 4. Progesterone given parenterally in 50 mg. doses will almost always cause withdrawal bleeding. This compound is not nearly as effective orally as dosages of approximately 300 mg. are necessary. The one congener of progesterone that is commercially available is iso or retro-progesterone sold under the trade name of Duphaston® which will cause withdrawal bleeding in a single oral dose of 35 mg. This compound has a change in the linkage between the ninth and tenth carbon atoms and an additional double bond in the second or B ring.

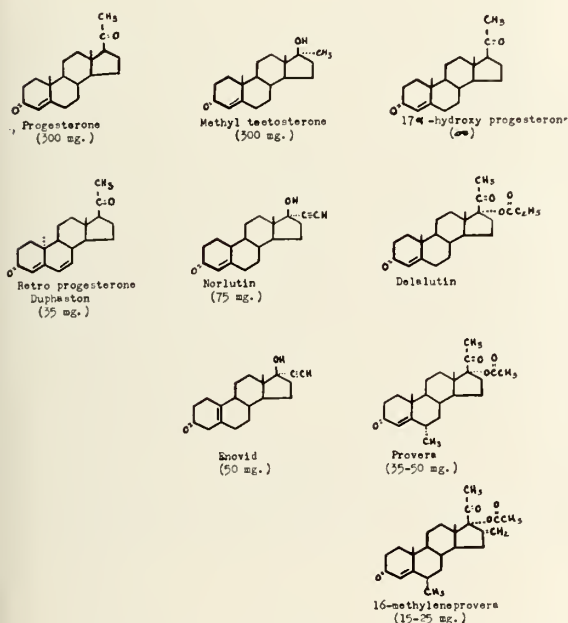


Figure 4. Synthetic progestins and their parent compounds.

Dose in parentheses indicates the amount which when given orally in a single administration will produce withdrawal bleeding. Approximately one-half of this total amount will be effective if given in divided doses over a period of four days.

Methyltestosterone is another parent substance with progestational activity, producing withdrawal bleeding and progestational changes in the endometrium when given in high dosages. The first synthetic compound resembling methyltestosterone is Norlutin®, which was made by removal of the 19-carbon, and being a 19-nor compound was rather appropriately named Norlutin. Chemically it would actually be

called 17 α -ethinyl-19-nor-testosterone. It is effective orally in a single dose of 75 mg. but would be effective in smaller quantities if given over a period of 4 or 5 days. The second synthetic compound is norethynodrel, which is one of the constituents of a commercial product called Enovid®. This compound is like Norlutin except the double bond in the A ring has been shifted from the 4-5 to the 5-10 position as indicated. It is an effective progestational agent and further potentiates the effect of estrogen on gonadotropin suppression.

The third group of synthetic compounds are congeners of the parent substance 17 α -hydroxyprogesterone which is not effective in the human but has rather extensive progestational activity in the mouse as demonstrated by Salhanick et al.¹⁸ The synthetic compounds are all esters of the parent substance. The first is Delalutin®, the caproate ester, which is available for parenteral use only. The second compound is Provera® made available by the Upjohn Company for both oral and parenteral use. It is a very effective oral progestational agent causing withdrawal bleeding in single dosages of 30 to 50 mg. Probably because the addition of a 6 α -methyl group to prednisolone had produced the more potent Medrol, Upjohn added this same group to make Provera. Provera has little or no androgenic activity in routine assays but has been implicated by Suchowsky and Junkmann in masculinization of the fetus of the rat. The authors know of no reported cases of masculinization of the human fetus associated with its use. The third compound is 16-methylene-provera which in our hands has been somewhat more potent than Provera producing withdrawal bleeding in single doses of 15-25 mg.

B. Estrogens.

Major synthetic estrogens available are indicated in Figure 5. Estradiol is a natural substance but is not used orally because it is not well absorbed.²⁰ On the other hand, the three-methyl ether of ethinyl estradiol is potent and well absorbed and is used in the commercial product known as Enovid. This estrogen in Enovid inhibits gonadotropin release and therefore makes it useful for suppression of ovulation in the treatment of endometriosis or as an antifertility agent. While it may be said that norethynodrel potentiates the estrogen effect, the estrogen component is probably the major reason that this drug is effective. Premarin® is a mixture of the sulfates and glucuronides of equine estrogens prepared from horse urine. It has been demonstrated that the major estrogens of horse urine are estrone and equilin²¹ and these also predominate in the Premarin mixture. These compounds, present as the glucuronides and sulfates, are quite water soluble and well absorbed orally. Diethylstilbestrol is a nonsteroidal estrogen as it lacks the

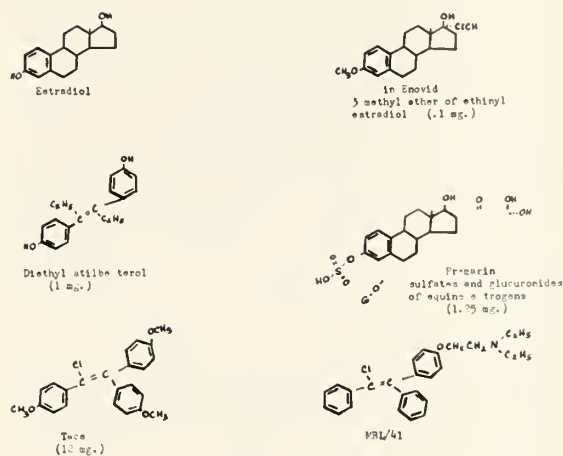


Figure 5. Synthetic estrogens.

Dose in parentheses indicates the amount of product that will prime the endometrium.

basic cyclopentenophenanthrene nucleus. However, it is similar to estradiol in that the distance separating the two hydroxyl groups of each compound are approximately the same. It is an inexpensive and perfectly acceptable estrogen. The only shortcoming of diethylstilbestrol is the tendency to increase pigmentation of the breast such that a dark brown areola is often produced when the drug is given to young women. Two related synthetic estrogens should also be considered. The first is Tace[®] which is well stored in body fat and has a rather long period of activity. The second is a derivative of Tace called MRL/41. This compound is of particular interest because Greenblatt^{22, 23} reports that it has produced ovulation in numerous instances. He used a dose of 50 to 100 mg. daily and stated that in women with any pituitary function at all, ovulation usually occurred. The complete efficacy of this drug remains to be evaluated. It is a weak estrogen itself and possibly exerts some or all of its effects by competition for effector sites ordinarily utilized by natural estrogenic compounds.

C. Testosterone and Related Androgenic and Anabolic Steroids.

Figure 6 indicates the forms in which testosterone is available as well as various congeners which are useful because they display either more androgenic or more anabolic activity than the parent substance. The first of these is fluoxymesterone or Halotestin[®], which has two to three times the androgenic activity of methyltestosterone. This increased activity is no doubt due to the 9 α -fluoro group which also increases glucocorticoid activity in a host of the synthetic glucocorticoid drugs now available. On the right are indicated those compounds which display more anabolic activity per unit of androgenicity. The first of these is Nile-

var[®] (19-nor-ethyltestosterone) which is effective in causing nitrogen retention with dosages approximating 25 mg. daily. A more recently introduced compound is Anadrol[®], made by the Syntex Company, while the most recent and best studied compound is Dianabol[®] (17 α -methyl- Δ 1-testosterone), a product of Ciba, effective in dosages of 5 to 10 mg. daily. It is pertinent here to note that all of these compounds have some androgenic activity despite the fact that they are publicized as anabolic agents. Dianabol, for example, will cause a young boy or girl to eat and grow, but it will produce epiphyseal closure, hirsutism and eventual dwarfing if dosages exceed .04 mg. per kilogram of body weight.²⁴

The long acting androgens and anabolic agents are essentially the esters of testosterone or 19-nor-testosterone with cyclopentylpropionic acid or caprinoyl acetic acid. They are shown in Figure 7 but since the advent of active oral preparations are probably not as widely used as they have been in the past.

Biological Activity of Natural Sex Steroids

The introduction of various substituent groups into the synthetic steroids now available for use has tended, in some instances, to blend their actions. Possibly the best comparison of biological activity can be made when one considers natural steroid hormones. In Table 1 the effects of natural androgenic, estrogenic and progestational substances are indicated. Certain comments are worthy of note in this table. The first is that the most potent inhibitor of gonadotropins is estrogen.²⁵ Androgens and progestational agents are less effective but many potentiate estrogen effects. The second is that androgens and estrogens will cause growth, but epiphyseal closure approximates the amount of growth attained so that the projected height of the individual in most instances does not change. It has been reported²⁶ that projected height is increased by the administration of Halotestin (flu-

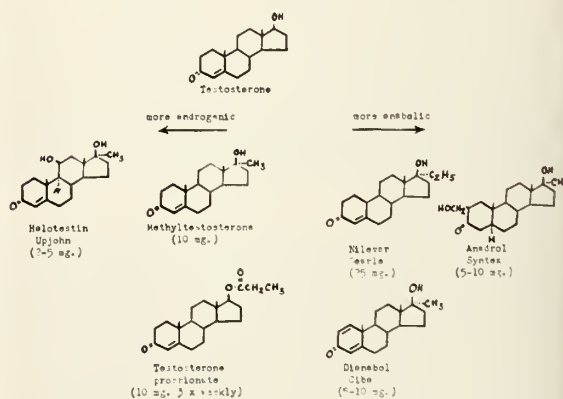


Figure 6. Testosterone and related anabolic steroids (with dosages).

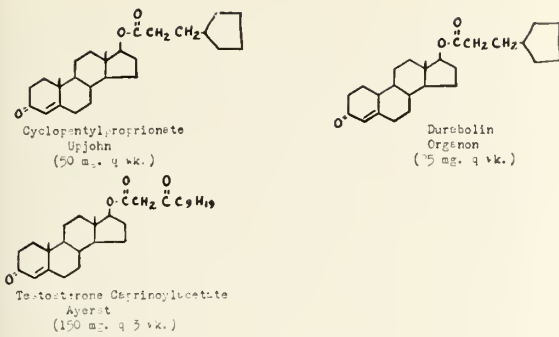


Figure 7. Long acting androgens and anabolics.

used to increase libido with variable effects. As a rule, they are effective only in those situations where clear-cut deficiency exists or when given in large dosages as in the treatment of breast cancer. Finally, it is to be noted that liver damage has been produced through the administration of androgens and various anabolic steroids.²⁸ This is minimal, for the most part consisting of cholestasis with some changes in BSP and SGOT levels that in most instances return to normal on cessation of the drug.

Uses of Sex Hormones

Having considered the available compounds and the biological activity of estrogens, androgens, and progestins, we will now consider the uses of these compounds (outlined in Table 2).

TABLE 2
USES OF SEX HORMONES

Androgens

1. replacement in deficiency
 - a. growth spurt and epiphyseal closure
 - b. development of 2° sexual characteristics
 - c. increase libido
2. rebound in deficiency of spermatozoa
3. breast carcinoma in female
4. osteoporosis

Estrogens

1. carcinoma of prostate
2. deficiency—senile vaginitis
 - a. flashes & flushes
 - b. growth spurt and epiphyseal closure
 - c. 2° sexual characteristics
 - d. osteoporosis
 - e. gonadal or pituitary failure
3. suppression of ovulation
 - a. dysmenorrhea
 - b. endometriosis
4. breast carcinoma

Progestins

1. control of anovulatory menorrhagia
2. suppression of ovulation
 - a. antifertility
 - b. endometriosis
3. suppression of menstruation
4. inadequate corpus luteum?
5. repeated and threatened abortion

TABLE 1
BIOLOGICAL ACTIVITY OF NATURAL
SEX STEROIDS

Activity	A	E	P
Develop male genitalia	++	-	±
Develop female genitalia	-	++	0
Depress ACTH	±	0	0
Depress Gonadotropins	+	++	±
Calcium Deposition	+	+	0
Anabolism (Nitrogen retention) . .	++	+	-
Growth	++	++	0
Close epiphyses	++	++	0
Hirsutism and/or acne	++	0	±
Salt retention	+	+	-
Increase libido	+or±	0	0
Liver damage	+	0	0

Activity of Natural Sex Steroids: ++ = profound effect; + = definite effect; ± = little or no effect; 0 = no effect; - = negative effect.

A. Androgens.

The androgens should be utilized orally whenever possible. They are certainly of value for replacement in various deficiency syndromes. They can be used to cause growth spurt in the eunuchoid or hypopituitary boy but it must be remembered that they will also

effect epiphyseal closure and may not bring the child up to full stature unless he is within a few inches of full stature at the time treatment is started. They can be used to effect development of secondary male sexual characteristics and will increase libido if loss of same is associated with an androgen deficiency.

There are various techniques that utilize suppressive effects of androgenic substances to produce a rebound of spermatozoa in those cases where deficiency is present. The efficacy of these techniques has not yet been completely evaluated. It would appear that the actual numbers of spermatozoa do not increase greatly but that motility and morphology are improved and incidence of pregnancy is increased in some cases. Of the various techniques available the one probably offering the best results is the administration of testosterone propionate (50 mg. three times weekly) for a period of 9 to 12 weeks. Following discontinuation of this drug, pregnancy has been reported in over 40 per cent of cases by Spence and Medvei.²⁹

Androgens have also been used in the treatment of breast carcinoma in the female. They are indicated only in those patients less than five years postmenopausal and should be given in rather massive dosages with the expectation of a remission rate approximating 15 to 17 per cent. The usual dosages are 100 mg. of methyltestosterone sublingually daily or 100 mg. of testosterone propionate intramuscularly three times weekly. More complete information is available in a published series.³⁰

Androgens are certainly effective in postclimacteric osteoporosis, and although they do not increase the bone mass they stop further progression of the disease and produce remission of symptoms. They are the agent of choice in the male with this disease.

B. Estrogens.

The use of estrogens in the treatment of prostatic carcinoma is well understood and will not be commented upon further. Like the androgens, estrogens can also be used in the treatment of various deficiency syndromes. Local application of an estrogen cream is probably the most appropriate treatment for senile vaginitis since it eliminates the hazard of uterine bleeding which causes anxiety as to the possibility of carcinoma of the female reproductive tract.

In instances where the menopause is marked with severe flashes and flushes minimal amounts of estrogen will cause a remission of these symptoms. A logical scheme of therapy consists of cycling (three weeks on, one week off) the cheapest oral estrogen available which is probably diethylstilbestrol. We have used .25 to .5 mg. daily finding the former dose effective in most instances and cyclically decreasing the administered dose over a period of six to nine months until the patient receives no therapy whatever. This

scheme of gradual estrogen withdrawal is often accompanied by minimal flashes and flushes but if one "lets the patient down easily," she will tolerate these minor symptoms and after a period of nine months be free from side effects. The use of shots is less physiological because they cause wide swings in estrogen levels and complete withdrawal is difficult.

Estrogens like androgens can also be used to effect growth spurt in the hypopituitary or hypogonadal child, but again epiphyseal closure also occurs and there is no clear cut proof that one will gain on projected heights. When one deals with a girl who has been castrated, has hypogonadism or gonadal dysgenesis, successful cyclic therapy for breast development is one or two mg. of diethylstilbestrol daily (or 2.5 mg. Premarin daily if one wishes to avoid areolar pigmentation) cycled with 50 mg. Provera orally at the time estrogens are discontinued (usually after 24 days). This breast development may be of real importance to such a girl in gym class and other situations where she is forced to compare her own anatomy with that of her colleagues.

The classic work of Henneman and Wallach demonstrates that estrogens are effective in treatment of postmenopausal osteoporosis. They utilize dosages of 1 to 3 mg. of diethylstilbestrol daily in a three to four week cycle followed by stopping for one week. This regimen usually produces freedom from symptoms and stops the loss of height which is secondary to osteoporotic kyphosis. Their data would indicate that it is not necessary to add androgenic compounds to obtain success in the postmenopausal woman.

Finally, because estrogenic compounds are the most effective inhibitors of pituitary gonadotropin secretion they are quite effective for the suppression of ovulation in the treatment of dysmenorrhea, endometriosis, and in individuals where pregnancy is contraindicated. Possibly not too much is to be gained by suppression therapy in endometriosis. Ordinarily this treatment is undertaken to cause enough remission of pelvic pain so pregnancy will be possible. However, the very treatment itself inhibits ovulation; and as a result of this, pregnancy will not occur. A very useful place for estrogen therapy in suppression of ovulation is in the teenage girl with severe dysmenorrhea that necessitates her remaining out of school several days each month. It has been our experience that the administration of 3 mg. of diethylstilbestrol daily for 24 days will inhibit ovulation in most of these girls. On the 24th day when the last stilbestrol tablets are taken, 50 mg. of Provera or 25 mg. of 16-methylene-provera is taken orally and approximately four days later the patient will have a completely painless period. Estrogens are started again on the second or third day of bleeding. In primary dysmenorrhea, where no other pelvic ab-

normalities are present, this regimen is effective for pain relief about 95 per cent of the time. After four months of suppression the patient can be discontinued with about a 50 per cent chance of not having recurrent dysmenorrhea of severity. Estrogens alone are also satisfactory for the suppression of ovulation to produce infertility where it is a medical necessity. Five mg. of Premarin or stilbestrol taken daily on a regimen similar to that outlined above for the adolescent girl have proved satisfactory but this regimen is more involved than the use of the combination progestational-estrogenic drugs (Enovid).

In patients with metastatic breast carcinoma one can produce remission in 15-20 per cent of cases by the administration of large dosages of estrogen (15 mg. stilbestrol daily). It is to be noted that this therapy is contraindicated unless the patient is at least five years postmenopausal.³⁰

C. Progestins.

The most important single use of synthetic progestational agents is in the control of anovulatory menorrhagia. This is true regardless of whether it occurs in the teenage girl or in the woman at the time of menopause. By monthly administration of either 50 mg. of progesterone in oil intramuscularly or 50 mg. of Provera, 35 mg. of Duphaston or 25 mg. of 16-methylene-provera by mouth, one can routinely produce withdrawal bleeding in three to six days if ovulation has not occurred. Utilizing this technique one desquamates the endometrium once a month and avoids the hyperplasia that is accompanied with severe bleeding, blood transfusions, and curettage. The administration of estrogens to these patients is not necessary as a rule since they have satisfactory estrogen levels of their own, and if estrogen is administered, it will block ovulation which might otherwise sometimes occur. It is our practice to treat the teenagers with the progestational agent once monthly and after a few months of cyclic treatment we follow them with basal temperatures. Once we can be sure ovulation is occurring with some regularity we discontinue the routine use of progestational agents and ask them to come back if they should ever go six weeks without a menstrual period. Under this circumstance we would again administer the progestin and see if withdrawal bleeding occurs in four to six days. It has been our observation that severe hemorrhagic bleeding occurs only after prolonged periods of amenorrhea or with endometrial hyperplasia, and by keeping in touch with the patient this can be avoided with moderate ease.

In the patient who has anovulation and menorrhagia at menopause it is our practice to always begin therapy with Pap smears and curettage to rule out carcinoma. In most instances the cyclic administra-

tion of a progestational agent in amounts indicated above will be satisfactory to regularize bleeding episodes and prohibit heavy bleeding. Ordinarily this monthly therapy is continued until the patient fails to respond to our progestational agent by bleeding for a period of three months. We then assume that the ovarian release of estrogens has ceased and request her to return if further bleeding should occur. Unlike the teenagers, the menopausal or near menopausal group may have low estrogen levels and fail at times to respond to administered progestins only to spot or bleed two or three weeks later. In these instances it may be necessary to utilize the same scheme outlined for teenage dysmenorrhea in order to obtain a regular bleeding episode. One can usually get by with one or two mg. of diethylstilbestrol daily for 24 days, stopping the estrogen, and giving the progestational agent at that time. With the advent of menopause her estrogen secretion will cease and the patient can be withdrawn from the estrogen without further bleeding. She may experience a few flashes and flushes but if withdrawal is gradual these can usually be controlled. Certainly it must be stated that in a small percentage of these patients, medical therapy is not successful and these women will be forced to undergo a surgical procedure for the cure of their otherwise uncontrollable bleeding.

Progestational agents can be used for the suppression of ovulation but here again it must be remembered that those compounds containing estrogen are, by far, the most efficient. Data from over the world have indicated that Enovid is a satisfactory agent for this purpose and the new 5 mg. tablet containing .075 mg. of ethinyl estradiol is very effective.

Parenteral administration of progestational agents, particularly Delalutin and Provera, can be utilized to inhibit gonadotropin release thereby "putting the ovaries to sleep." This is a useful approach in some cases of endometriosis where temporary relief of pain is required, but once again it will, if effective, inhibit ovulation and therefore make conception impossible. This technique is useful in those instances where one is dealing with a broad-based submucous fibroid present in the uterus of a woman who is bleeding heavily from it. If this bleeding is of an ovulatory nature, cyclic therapy will be of no avail. Under these circumstances 50 mg. of Depo-Provera intramuscularly each week will produce long periods of amenorrhea either allowing the woman to build up her hemoglobin level for surgery or, if she is within a few months of menopause, this technique may save her a major surgical procedure.

The use of progestational agents is questionable in women who are presumed to have an inadequate corpus luteum. This is a somewhat over-publicized,

rarely occurring situation and unless one is confident that endometrial biopsies definitely reveal a retardation in the development of the secretory phase, the use of these compounds is probably not justified. Noyes has observed, in the human, that the inadequate corpus luteum with inadequate secretory endometrium is a rare occurrence; and in animal studies moderate retardation of the secretory endometrium is not accompanied by failure of implantation.

Finally, progestational agents are indicated in some women with a history of repeated abortion. Recent careful studies by Goldzieher,³³ Kupperman,³⁴ and Morgan³⁵ et al., have indicated that in instances where one has a patient with a history of repeated abortion and a low urinary pregnanediol level, fetal salvage can be improved by the administration of progestational agents. It has been observed by these investigators that success is not great if cramping and bleeding have started before the agents are used. Various regimens have included 1,000 mg. of progesterone by mouth daily; 250 mg. of progesterone plus 250 mg. of Provera parenterally two to three times weekly, and 30 mg. Provera daily by mouth. Once again it is to be emphasized that one can only expect improved fetal salvage in those instances where pregnanediol levels are low indicating a deficiency in progesterone synthesis by the corpus luteum or placenta.

Contraindications and Complications of Therapy

Let us conclude our discussion of sex hormones with consideration of the contraindications and complications of therapy listed in Table 3. It has been previously mentioned that the androgens will cause liver damage and jaundice though this is not usually severe. It is further known that they are to be avoided in carcinoma of the prostate. Possibly the most im-

portant contraindication or complication of therapy is hirsutism and masculinization. If one gives women more than 300 mg. of methyltestosterone monthly, acne, hirsutism, clitoral enlargement and deepening of the voice will occur. Some women are even more sensitive and these side effects can be produced with 100 to 150 mg. monthly. Because of the insidious way in which the cumulative effects of these compounds occur, the use of androgens in women should be avoided or curtailed. They are probably unnecessary in the treatment of osteoporosis, and only in carcinoma of the breast is one willing to accept the side effects. Although androgens are often used for vague pelvic pain and mastalgia this can be a dangerous procedure. Even in the absence of marked hirsutism or clitoral hypertrophy one occasionally sees a teenage girl who has lost her soprano voice as a result of androgen administration and who is quite unhappy about it. For this reason, we would suggest that the use of androgens be avoided altogether except in the treatment of breast carcinoma or of a hypopituitary problem.

The estrogens should be avoided in breast cancer if the patient is less than five years postmenopausal and are best avoided in all situations where carcinoma of the female reproductive tract has been found. There seems little doubt that estrogenic substances are capable of increasing the incidence of breast and other reproductive tumors in various animal species. There is at present no evidence to indicate that they will actually cause cancer in the human, although there is evidence that some existing carcinomas grow more rapidly under the influence of estrogen, particularly in pharmacologic amounts. There is no indication to deny a patient who does not have existing cancer estrogen therapy where it is clearly indicated. The estrogens have been noted to cause nausea and vomiting, particularly in large dosages, regardless of the way in which they are administered. Many patients who have only minimal vomiting will gradually lose this symptom as they continue estrogen therapy. On the other hand, some women are unable to take estrogens at all because of the severe vomiting that they produce.

The major complication for the use of progestational therapy in the pregnant woman has been delineated by Wilkins, et al. These investigators reported variable degrees of masculinization of the fetus in mothers who had received oral Norlutin during pregnancy. It is possible that all of the progestational agents cross the placenta and could give rise to masculinization if this is a component of their biological activity. There are no data available in the human species to indicate that one progestational agent is more dangerous than another. In the absence of any "hard" data we have elected to use chemical

TABLE 3
CONTRAINDICATIONS AND
COMPLICATIONS OF THERAPY

Androgens

1. Avoid in carcinoma of prostate
2. May cause liver damage and jaundice
3. Will cause hirsutism and masculinization

Estrogens

1. Avoid in cancer of breast (before 5 years postmenopause) and in carcinoma female reproductive tract
2. May cause nausea and vomiting

Progestins

1. Masculinization of female fetus

structure and tend to avoid those compounds that are testosterone like, favoring Provera, Duphaston, Delalutin and progesterone for the treatment of habitual aborters with low urinary pregnanediol levels as previously outlined. In all instances we explain to the women that there is a possibility that masculinization of the fetus may occur if it is a female. We further indicate that this can be surgically remedied and that we are balancing one risk against another. It has been estimated that masculinization may occur in ten per cent of all females when high dosages of certain progestational agents resembling the parent substance testosterone are used. Other reports have denied this and the answer remains to be seen. Nevertheless, one should utilize extreme discretion in the administration of any progestational agent to a pregnant woman, and it should be given only in those instances where it is indicated by low urinary pregnanediol levels.

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When we say that a man has no sense of humor, what we really mean is that he hasn't the same sense of humor we have.—*Frank Case*

Distrust all in whom the impulse to punish is powerful.—*F. W. Nietzsche*

Children and Speech

Language Failure in Young Children

RALPH E. WHITE, M.D., *Garnett*

NEARLY EVERY family physician has at one time, or another, been abruptly faced with the query from anxious parents, "Doctor, why doesn't my child talk?" Most parents have some knowledge as to the way a child should develop speech. A normal child will babble at three to six months of age, use words meaningfully at about one year, and begin to use phrases at eighteen months to two years. He will make his wants known by signs and grunts long before he learns to use any of the proper words. If a child has reached the age of two years and hasn't begun to use some words the parents should properly be concerned. Since the natural development of language is dependent on hearing we have chosen to discuss principally that phase of the problem.

Before a child can learn to talk he must be old enough, physically and mentally, to have heard words, sounds, and expressions in sufficient quantity and under such circumstances as to have learned their meanings. The infant responds to facial expressions and mannerisms long before he learns the meaning of any of the words spoken to him. The way something is said means far more to him than what is said. He must have begun to associate these words, sounds and expressions with his other experiences so as to have evoked some thought processes, inner language, and finally to have begun to express, or vocalize, these thoughts in imitation of those he has heard. Signs, gestures and facial expressions are never completely abandoned even by the most fluent speaker but used to add emphasis and color to the spoken word.

All of this presupposes the intactness of the anatomical apparatus necessary to bring this about. For the sake of clarity let us review the anatomy and physiology involved. We will be brief.

The sound wave strikes the external ear and is funnelled to the tympanic membrane, the ear drum, which vibrates in response. These vibrations set in motion a chain of ossicles, small bones, in the middle ear that transmit the sound wave to the oval window of the cochlea, the coiled tube containing the Organ of Corti, the hearing receptor in the inner ear. Here the sound wave is transformed into a fluid wave by the piston-like action of the footplate of the stapes, the last of the small bones in the chain, and the

smallest bone in the body. The Organ of Corti is bathed in a fluid called endolymph. The basilar membrane and hair cells of the Organ of Corti vibrate in unison with the fluid wave. In order that the fluid waves started in the oval window may move unhampered over all the hearing organ, there is another compensatory opening called the round window. This opening is sealed with a tough, flexible mem-

A summary of the various causes of language failure in children, including peripheral deafness, congenital defects, and various forms of aphasia. It is important that the recognition of the presence of a defect and its nature be made early in life; otherwise treatment will be delayed, or improper, or both.

brane that will give when the fluid wave strikes it.

This hearing receptor organ is a most remarkable piece of machinery. It is able to respond to 1,500 different degrees of pitch and 325 different degrees of loudness, one third of a million different tones in all. This hearing machine is like a tiny keyboard with each key, haircell, connected to a nerve fiber that goes to the brain. Each key responds to the appropriate tone selected from the sound wave that reaches it from the oval window.

After we have heard a certain collection of sounds in relation to certain objects and circumstances a number of times we begin to learn their meanings. We incorporate them into our thinking and link them with our other experiences. Then through certain association pathways in the brain the reproductions of these sounds are carried to the motor speech center. From there the motor nerve fibers to the vocal cords are stimulated to imitate the sounds we have heard. This is the natural process of learning speech; hearing words over and over enough times to have learned their meanings, digesting them in the brain over the association pathways enough to have incorporated them into an inner language of thought, then reproducing them by our own vocal cords in meaningful imitation of those that we have heard.

We have chosen to discuss four general types of disorders that cause language failure in children. The disorder may be in the hearing apparatus and called peripheral deafness. It may be in the brain and called aphasia. It may be an emotional disturbance and called psychic deafness, or it may be due to mental retardation and called mental deficiency.

Peripheral deafness refers to the interruption of, or interference with, the sound wave somewhere in the hearing apparatus before reaching the central nervous system. It may be a conductive, or receptive disorder, or both. Conductive deafness may be produced by congenital defects of the external ear, plugging the ear canal with wax, or a foreign body. Congenital absence of the ear drum and ossicles might conceivably occur, or their destruction by disease, or injury. Disease, injury, or new growth in the middle ear might interfere with the transmission of the sound wave from the ear drum to the oval window. Enlarged tonsils and adenoids may block the free exchange of air in the middle ear and cause defective hearing. Receptive deafness, commonly called nerve deafness, may be caused by disease, injury, or defective development of the Organ of Corti, or the nerves leading from the hearing organ to the brain.

Aphasia refers to a language disorder due to localized disease, or injury, of the brain. It may consist in an inability to understand speech, known as receptive aphasia; to an inability to develop an inner language of thought, known as central aphasia; to an inability to use speech even though heard and understood, known as expressive aphasia; or to any combination of the three. In young children this disorder is usually congenital, or occurs very early in childhood through injury, or disease, of the central nervous system.

Children of fair intelligence with intact hearing and speech apparatus sometimes fail to develop language because of emotional disturbance. This may take the form of profound mental illness such as childhood schizophrenia, or infantile autism, or of a milder disturbance such as an anxiety neurosis, or a primary behavior disorder. These children seek to withdraw and separate themselves from people. This they do by psychologically cutting off the avenues of communication, hearing and speech. There are many causes for this but among the most common is fear of sound possibly occasioned by the first sounds heard by the infant being harsh and unpleasant.

Mental deficiency is associated with general retardation. Those at the idiot level do not acquire speech but are able to use some single words meaningfully. Those at the imbecile level are usually three years of age before they begin to use words and become capable of some simple sentence structure.

Morons usually begin to speak at about two years of age so rarely present a sufficient problem in language development to alarm their parents.

As in all other medical problems we concern ourselves with causes. The history is of utmost value in differentiating these four types of language difficulty. The conditions of the prenatal period, especially the first three months; the conditions of the birth; the conditions immediately following the birth and conditions during infancy and early childhood are of prime importance.

A history of measles in the mother during the first three months of pregnancy has been associated with impaired hearing in the infant and it is known that other defects can also occur, such as blindness, heart trouble and mental deficiency. Emotional disturbances, accidents, and Rh incompatibility might also cause damage to the fetus. Recurrent false labors with possible concomitant disturbances of the placental blood supply are also thought to have bearing on defective development in the infant.

The conditions of birth quite certainly have a great deal to do with auditory and language difficulties. A precipitous birth requires rapid adjustment from intrauterine pressure to atmospheric pressure and could lead to intracranial hemorrhage and other damage to the central nervous system. Prolonged labor may lead to oxygen want from placental separation, or pressure on the umbilical cord, with consequent brain damage. Caesarian Sections are classed with precipitous deliveries. Instrumental deliveries can be damaging. Prematurity, because of lack of physical maturity, and post-maturity, because of increased size, might also be reason for damage.

During life in the uterus the fetus is accustomed to an oxygen poor situation but the tissues of the brain do not tolerate an actual oxygen want for longer than about seven minutes. Failure to respond promptly at birth because of delivery under anesthesia, excessive sedation of the mother, or other undetermined factors may result in damage to the brain. Other newborn incidents such as sucking mucus, fluids, or formula, into the air passages and infections may also lead to damage from the lack of oxygen.

During infancy and early childhood certain diseases and accidents may impair the ability to receive, associate, or express language. Meningitis and encephalitis are more prone to do permanent damage and may come as a complication of measles or mumps. These diseases may damage the brain or inner ear. Upper respiratory infections, colds, tonsillitis and sinusitis accompanied by infection of the middle ear may lead to conductive deafness. Accidents resulting in intracranial hemorrhage may damage the hearing Organ of Corti, the acoustic nerve

that carries the sound impression to the brain, or the brain itself. Puncture wounds penetrating the ear drum may do actual damage to the ossicles, or leave a permanent perforation of the drum to result in significant hearing impairment.

As further aid in differential diagnosis we find the history of genetic, emotional and language development along with certain behavioral characteristics to be of great importance. Children with handicaps are slowed down in their genetic development because of their handicap, the variable factor being the handicap. Children with only peripheral deafness are more nearly normal than brain damaged, or emotionally disturbed children and therefore develop in a manner more nearly normal. Mentally deficient children develop directly in proportion to the degree of mental deficiency. Mixed handicaps present a more confused picture.

The child with peripheral deafness will respond consistently to any sound that he can hear but does not develop language because he does not hear any words. He begins to babble at the normal age but derives no auditory pleasure, or comfort, from the sound so instead of progressing to the inclusion of words in his babbling he deteriorates by first losing his consonants then ending with only throaty gutturals used to attract attention. However, he can see, feel, taste and smell. His brain is not injured so he develops an inner language, he begins to learn and to think. He discovers that by vocalizing, which he is perfectly able to do, he can attract the attention of his parents and others. The sound will probably be much louder than necessary because he is not able to monitor it by hearing. He also learns to communicate by means of gestures, sign language. He learns to receive communications by means of facial expressions and movements, "actions speak louder than words." Peripheral deafness is rarely complete so he will incorporate into his experience and expression those sounds that he can hear.

The child with aphasia has brain damage. He hears the sound but is not able to control his response. Sometimes he responds correctly but doesn't know how, or why, he does it. The aphasic infant does not babble. Fortunately, aphasia, also, is rarely complete. Expressive aphasia rarely gives trouble in diagnosis because these children hear and comprehend well, but speak irradically. Most aphasias are mixed with a certain type predominant. Receptive and Central Aphasia are more often confused with peripheral deafness. They differ in that aphasic children do not develop an inner language and do not communicate with others by means of gestures and meaningful vocalization. They are characterized by what is known as jargon speech, meaningless words, and echolalia, echo speech, a repetition of words just

heard. The inflection and tone control are good because the aphasic can hear well and these items are reflexly controlled even though the child doesn't comprehend the significance of the sounds he makes.

The child with psychic deafness is emotionally disturbed. If caught unaware he will give a startle response to sound then put up his guard. He hears but does not accept the sound, so ignores it, "turns it off." He does not speak because speaking brings him in direct communication with people whom he has rejected. The exception to this is the schizophrenic who will sometimes echo the words said to him. Quite often the emotionally disturbed child will make noises while preoccupied in his play. He develops a very complex inner language but uses it solely as fantasy to entertain himself.

The mentally deficient attains that degree of language development compatible with his mental age. He becomes a problem in diagnosis when the condition is mixed and the signs of retardation are overshadowed by the other handicaps.

The emotional development of these children differs from the normal and is characteristic for the type of handicap concerned. The child with peripheral deafness tends to develop more nearly normal than the others because he is more nearly normal. His social response is amazingly good. He tends to be shy because the auditory part of socialization is denied him. We must expect some emotional disturbance because of this. He tries to compensate for his lack of hearing by watching facial expressions and movement, thus often giving the impression of being hyperactive. He learns to interpret the situation visually and communicate with his companions in a limited manner by means of signs. As an infant he rarely presents any unusual feeding or sleeping problems. He is quite sensitive to vibrations.

The brain damaged child is extremely inconsistent in social response. He may at times behave in an acceptable manner and at other times be difficult. He is extremely hyperactive and distractable. His span of attention is short so that he moves from one item to another with such rapidity that he at times appears to flit about the room. I recall one such child who was brought to us because of failure to develop language. She was all about my office like a caged animal while I talked briefly with her mother about the problem. One diagnostic characteristic of these children is that they are not sensitive to vibrations.

The emotionally disturbed child does not respond socially because some emotional insult has caused him to want to withdraw from the noisy social world about him to the peacefully calm, quiet world within, so he psychologically shuts off the sound, in effect "closes his ears." He shuns people and engrosses himself for hours on end with plain blocks. Dolls

remind him of people so he rejects them also. As an infant he presents no end of feeding problems and often awakens suddenly in the night screaming with terror, or perhaps just doesn't sleep at all as an infant should. When he becomes older he will spend hours in abstract rocking to and fro, or perhaps from side to side. He may perhaps even repeatedly bang his head viciously against solid objects unless restrained.

The mentally deficient child is usually good natured and quite social. He is just slow in development.

After we have examined the history and symptomatic behavior of these children we still feel that something concrete is needed to establish the probable diagnosis. We would like to know, first of all, whether or not the child can hear. Then we would like to know something of his mental capacity, his ability to make meaningful sounds and something of his motor control.

Formal hearing tests are not applicable to small children so we must rely on informal testing. A medium sized bell, a whistle, a tricycle horn, or clacker, and a tuning fork of 256 double vibrations per second are adequate testing tools.

The child is left with his mother in a play situation, a room with toys, small tables and chairs, etc., or the test can just as well, or better, be performed in the home where the child is more relaxed. While the child is engrossed in his play a sound is produced by one of the instruments from out of sight. If he can hear the sound he will stop whatever he is doing, momentarily, at least, and the normal child will turn toward the sound. The peripherally deaf child will respond regularly and consistently to a sound that he can hear. The brain damaged child will respond sometimes and other times not. The emotionally deaf child will respond the first time and then ignore the sound no matter how loud. The mentally deficient child will respond regularly within the limits of his capacity.

The play situation is again useful to determine the child's capacity for constructive thinking, inner language. The peripherally deaf child with normal inner language will immediately begin to play in an orderly and constructive manner. The brain damaged child will move quickly from one toy to the next in a confused, mixed up sort of way. The emotionally disturbed child will pick up one toy, preferably a plain block, and hold it, or merely sit abstractedly in the midst of the toys. The mentally deficient will play according to his capacity.

It is usually not necessary to do special testing to determine whether or not the child can make meaningful sounds. The hazards of daily living and the routine childhood examinations and immunizations

are usually sufficient for this. The child with peripheral deafness will cry in the usual manner when he receives his shot except that the cry will probably be unusually loud. The cry of the brain damaged child is usually a whine, or he may cry hysterically for just a few minutes. This is known as catastrophic reaction. The emotionally disturbed child does not cry when hurt, or if he does, he does not shed tears. As we have previously indicated, the mentally deficient child will respond normally for his age group.

There are many other tests that can and should be done in order to completely categorize the complex case. The vibratory test of tapping, or applying the handle of a tuning fork to the leg of the chair on which the child is sitting will distinguish the peripherally deaf from the brain damaged child.

I want to give you a brief word on therapy—that is—what we can do for these children after the diagnosis has been established. Each of these problems must be handled appropriately. Supplying an emotionally disturbed child with a hearing aid is a useless and traumatic experience and would be for any child but the peripherally deaf.

Most important in our therapy is the education and cooperation of the parents. They must be made to understand their child's situation as thoroughly as possible. Every vestige of guilt complex must be completely eradicated. Ordinarily the situation is not something for which they are in any way responsible. Congenital syphilis is the only condition that we may blame directly on the parents. It is a situation that cannot be eliminated but must be endured. Sympathetic cooperation is necessary but too zealous over-treatment can be injurious.

The child with peripheral deafness can be taught speech. If his hearing loss is not too severe a hearing aid is useful, but he can be taught by the tactile and visual method even if he is completely deaf. He can be taught lip reading and thus grow up to be a responsible member of society.

The brain damaged child presents an entirely different problem. If his damage is not too severe he can be taught speech but he is a disintegrated and hyperactive sort of individual. Overstimulation must be carefully avoided. Tranquilizing drugs are useful in this field. Often his muscular coordination is not good, therefore he is limited to a very special type of work under supervision. Some of our most renowned geniuses have been brain damaged children not capable of caring for themselves but capable in a special manner of adding to the comfort and pleasure of all mankind.

The emotionally disturbed child needs the help of psychiatrists and child psychologists. The hope for salvage depends on the nature and severity of the

disturbance. The mentally deficient is trainable, within the limits of his capacity. Patience, sympathetic understanding, and still more patience are required.

I have perhaps given you the impression that these conditions usually appear uncomplicated and that differential diagnosis is relatively easy. Unfortunately this is rarely so. The child with conductive deafness and the child with a familial type of mental deficiency are the most likely. Congenital defects are more apt to be multiple than single. Children with gross congenital anatomical defects usually also have mental defects. The child with severe nerve deafness will also likely have some brain damage. There are some who think emotionally disturbed and mentally deficient children, other than the familial types, also have brain damage. The peripherally deaf child is certainly a good candidate for emotional problems.

There is a great deal of speculation and some research as to why developmental defects occur. We have enough evidence to incriminate certain viral diseases such as measles. Syphilis, deficiency states such as beriberi, malnutrition, blood and glandular diseases and Rh incompatibilities have also been found to cause defects. The deficiencies of the chromosomes and germ plasm occurring at the beginning and end of the childbearing period in a woman's life have also been thought responsible for defective development. The reason for the selective action in the production of the defect is answered only by conjecture and speculation. The selective action of the offending agent, the period of gestation, the relative resistance and susceptibility of the various tissues all have something to do with the end result.

There is a tendency for parents to blame themselves and develop guilt complexes because of a defective child. There is also a tendency for one parent, or the other, to reject the child and thus further complicate the already difficult situation. No court in the world would hold parents culpable for an accident of nature but the case is different for neglect and maltreatment of an unfortunate child. It has also been clearly demonstrated that these same unfortunate children make more progress and attain greater heights in the home environment under the tutelage and tender loving care of their own natural parents than in an institution.

Early diagnosis of peripheral deafness is of utmost importance. An infant who appears to be perfectly normal except that he has quit babbling and fails to be attracted by sound at nine to ten months of age should be suspected of being deaf. The critical period for learning speech is between the ages of one and three years. A deaf child supplied with an adequate hearing aid at age one year will develop speech normally. If we wait until he starts to school he will not understand what he hears and will be a long way behind in learning language without the additional burden of the academic material thrust at him. It is estimated that from one to three per cent of school age children have hearing defects severe enough to handicap. We should keep in mind that "The child may not be stupid, he may be deaf."

The worst jolt most of us ever get is when we fall back on our own resources.—*Kin Hubbard*

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

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Deformity of Hand

An Unusual Case of Dupuytren's Contracture

FOUNT K. HARTLEY, M.D., *Wichita*

History of the Disease

THE FIRST KNOWLEDGE we have of Dupuytren's contracture¹ was from a description by Plater in 1610. Later in 1808 it was referred to in the lectures of Henry Clive. Sir Ashley Cooper in 1818 described the disease as being due to hypertrophy of the palmar fascia. It remained, however, for Baron Guillaume Dupuytren in 1831 to actually describe the real pathology of this contracture. He did so after dissecting the hand of a cadaver afflicted with the disease. Baron Dupuytren was interested in pathology and its relation to surgery early in his career as a prosector and later a surgeon. In his very concise treatise he states that on removing the skin of the afflicted hand he noted that the palmar fascia was tense, retracted, and shortened. Passive movements of the fingers in extension caused the fascia to become tense. Dupuytren then cut across the palmar fascia and each finger could then be easily extended. This disproved the previous conception that the deformity was due to contracture of the tendon because at his dissection the tendons were found to be smooth and mobile and the joints were normal. "It is natural to conclude," he said, "that this disease began with an exaggerated tension of the palmar fascia."

Incidence

Well over 600 cases have been reported by various authors² including Anderson, Rath, Biford, and Kanel. The statistics for this report are based upon these cases. It is believed by these authors that Dupuytren's contracture occurs in one to two per cent of the over-all population. It is generally a disease of older people with the sex incidence as being six males to one female. The youngest patient in this vast experience was about 11 years of age. Patients are as the rule in the late 40s or early 50s and have had the disease from seven to 11 years prior to seeking medical aid.

Etiology

The actual etiology of Dupuytren's contracture is still a matter of conjecture. It is known that it is prevalent in males and in individuals over 40 years of age. It is most certainly hereditary, there being several instances of more than one member of one

family being involved with this disease. A definite feature in all patients with Dupuytren's contracture, is the association with a diathesis of overgrowth of connective ligamentous tissue. For instance, there is more than a casual relationship between Dupuytren's contracture and Peyronie's disease in the male. It is noted that there is about a five per cent associational

A case of Dupuytren's Contracture, unusual in the age and sex of the patient, is reported with discussion of management and results.

involvement of the plantar fascia of the foot which gives the cavus formation of the foot. That Dupuytren's contracture is often associated with overgrowth, thickening and contracture of ligamentous tissue elsewhere in the body has done a great deal to exclude the argument that trauma is an aggravating cause of this disease.

Symptoms

The symptoms of Dupuytren's contracture are often insidious and freedom from pain is common. One of the very early signs of the disease may be a small lump noted in or near the distal palmar crease opposite the ring finger. This hypertrophies and soon a subcutaneous contracting band can be palpated in the line of the palmar fascia. A noticeable rise in the distal crease into a transverse fold can be seen with a dimpling and contracting band which draws a fold of skin inwardly. At its incipiency this disease does not cause contracture of the fingers and there is no limitation of motion in its early stages. The development of this disease may be rapid or slow. One of the aggravating causes of advancing contracture is poor general health of the patient, e.g., prolonged sickness or surgical operations. The first contraction deformity will be noted in the proximal joints and it is the distal joints that are often spared because the fascial extensions do not extend past the middle interphalangeal joints. As the disease advances the patient becomes increasingly disabled and the claw-like hand becomes increasingly troublesome. Corneal lacerations

from inserting the finger into the eye may occur or a problem of hygiene may develop because of skin maceration and inability to clean the opposing tissues of the hand. The ring and middle fingers are involved at the same time and the contracture occurred bilaterally in 50 to 75 per cent of reported cases. In cases where it is unilateral, however, it occurs in the right hand about twice as frequently as in the left.

Pathology

This is simply an exaggeration of the normal palmar fascia and its attachments. The palmar fascia is a framework of fibrous tissue which holds the palmar skin firmly in relation to the underlying skeletal anatomy. It originates as the attachment of the palmaris longus muscle and terminates into four slips, a division of the palmar fascia which hooks into each finger. There are eight arches comprised of fingerlike longitudinal septa which pass vertically from the floor of the palm to the overlying palmar fascia. These arches form enclosures for vessels, nerves, and lumbricales muscles.

Case Report

The patient is a 12-year-old white girl who was seen on March 24, 1961, with the complaint that her right small finger was beginning to draw down and

that she was unable to actively extend it to its full length. The patient stated that this condition has been present about three months. The patient stated that she had always been able to extend this with force by using the other hand to execute this maneuver. The patient said also that the left hand had very recently begun to show the same picture. Examination of the patient was negative except for the hands which revealed small fibrous nodules just distal to the distal palmar crease of the hand on both hands especially opposite the ring finger. Most notable change was in the minimus; however, a strong fibrous cord could be felt to extend from the distal palmar crease and terminate in the proximal interphalangeal joint structures. When the finger was extended to its fullest extent this fibrous band would stand out much like the taut bowstring on a hunter's bow.

Roentgenograms were taken and revealed a moderate flexion of the fifth digit, right hand and left hand at the proximal interphalangeal joint. There was no evidence of soft tissue calcification or osseous abnormality. The remainder of laboratory workup was negative.

The patient was admitted to St. Joseph Hospital, Wichita, on April 6, 1961 for surgery. On April 7, 1961 the patient was taken to surgery where a bilateral palmar fasciectomy was performed. The technique included 10 minutes of scrubbing, palmar draping



Figure 1. Before.



Figure 2. After.

and a pneumatic cuff was applied to the arm for hemostasis. It was noted that the right hand was the worst and was done first. Incision was made in the distal palmar fascia; skin was elevated and there was seen fibrous prolongations of fingerlike extensions from the palmar fascia down into the septa of the tendon sheath. These were cleaned out from the proximal palmar crease through multiple incisions all the way out to the middle interphalangeal joints. As these fibrous sheaths were incised and then excised one noted a great release of the tension of the fingers and, as in Dupuytren's original work, the hand was seen to relax when these were divided. Both hands were done at the same sitting and the skin edges were closed with -000- stainless steel wire. The tissue report was given as palmar fascia and fatty tissue. The postoperative course was uneventful and the skin edges did not reveal any serious lack of blood supply. The sutures were removed on April 19, 1961 and the fingers were put in splints to ensure their extension. The patient later was instructed to remove these during the day for passive and active motion and to replace them at night. The patient was last

seen four months after surgery and the hands were in perfect condition. (See photographs.)

The immediate prognosis is generally good but it must be borne in mind that people afflicted with Dupuytren's contracture are inclined to stiffen in the joints and contraction of the ligaments may slow the ability to fully extend the fingers. In some cases healing may be delayed and it may take a year before complete extension of the fingers is obtained. With the procedure herein defined, a complete and permanent cure is to be expected. It is true that some patients will return later showing more contracture in some areas of the hand where the fascia has not been completely excised because it was not involved at the time of surgery. It is believed that Dupuytren's contracture spreads through contiguous fascia and, much like a locally recurrent tumor, will recur if not completely removed at that site.

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HEALTH HAZARDS

"People in rural areas are exposed to different health hazards from those in cities," according to an editorial by C. C. Dauer, M.D., in *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians. Among rural health hazards which he cites are those presented by migrant workers, animal disease transmissible to man, and accidents stemming from use of farm machinery. Dr. Dauer, who is Medical Advisor of the National Center for Health Statistics of the U. S. Public Health Service, also points out that there are "usually lower ratios of physicians, dentists, and hospital beds to the population in rural areas, and these facilities are not easily accessible in sparsely populated regions."

Urban areas, on the other hand, have serious health problems of their own. "Tuberculosis is more common in cities, although mortality has declined substantially. The disease still requires expenditure of large sums of money for care and rehabilitation of patients. Venereal diseases show little sign of receding. Adequate supplies of water for household and industrial use are difficult to obtain in some regions, while increasing pollution of the sources of water are troublesome in others. Various problems relating to urban sprawl are becoming increasingly evident. Some types of air pollution have been or are being corrected, but that which arises from the exhaust of automobiles is becoming an increasingly serious problem."



Tumor CONFERENCE

Bronchial Adenoma

Edited by TOMAS MARAMBA, JR., M.D.*

Dr. Reed (Moderator): For tumor conference today, we have an interesting neoplasm of the lower respiratory tract. Dr. Heilbrunn, will you present the history, please?

Dr. Heilbrunn:** P. L. is a 38-year-old white lady who was admitted to the University of Kansas Medical Center on November 2, 1961, for evaluation of hemoptysis. Her present illness dates to March, 1961, when she had an upper respiratory infection associated with cough, chills, and fever. She received antibiotic treatment but felt that she did not completely recover. Several days later, she developed hemoptysis for the first time and was admitted to a local hospital. Various examinations during a week's hospitalization including investigation for the possibility of tuberculosis did not reveal any significant disease. She continued to have intermittent blood streaking of her sputum, accompanied by increased fatigue, weakness, and soreness, rattling and wheezing in her left chest.

Past history reveals that she was in an automobile accident in 1953 following which she became amenorrheic and had persistent lactation of the breasts.

On admission, she was an obese woman (weighing 196 pounds and having a height of five feet, seven inches) who appeared to be her stated age. Physical examination was not remarkable except for a small amount of secretion that could be expressed from the breasts. Scattered rales were noted in the left upper anterior region of the thorax.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society.

* Dr. Maramba is a resident-fellow in pathology, supported in part by U.S.P.H.S. grant 2G-125.

** Dr. Heilbrunn is a resident in Thoracic Surgery, Fellow of American Cancer Society.

Dr. Reed: Was there any weight loss?

Dr. Heilbrunn: She lost eighteen pounds in the past four months.

Dr. Reed: Did the patient smoke cigarettes?

Dr. Heilbrunn: She denied any history of smoking.

Dr. Reed: Were skin tests done?

Dr. Heilbrunn: Tuberculin skin tests, both intermediate and second strength were done and were negative. The histoplasmin skin test was strongly positive. Cultures of sputum, bronchial washings, and gastric washings for tubercle bacilli were negative. All the other laboratory examinations were normal except for a slight leukocytosis postoperatively.

Dr. Reed: May we see the chest x-rays, please?

Dr. Hartman (Resident in Radiology): The conventional chest films show slight elevation of the left hemidiaphragm. There is an infiltration in the medial aspect of the left upper lobe. The mediastinum in the region of the left hilum is enlarged. The bronchograms show elevation of the left main stem bronchus. There is complete occlusion of the bronchus leading to the anterior apical segment of the left upper lobe. There is no bronchiectasis.

Dr. Reed: Dr. Miller, would you run through the differential diagnosis in a patient of this age, presenting with hemoptysis, weight loss and the x-ray findings we see here?

Dr. Miller (Surgeon): The most common cause of bleeding from the lower respiratory tract is bronchiectasis, whether tuberculous or non-tuberculous in origin. About 50 per cent of patients with bronchiectasis will have hemoptysis at one time or another. In the absence of a previous history, bronchiectasis probably can be ruled out. A rather common cause of hemoptysis in the younger age group is bronchial adenoma. With this condition, there may be repeated

episodes of bleeding over a long period of time. Pulmonary tuberculosis should also be considered. The x-ray findings and the negative tuberculin skin test are against this consideration in this patient. The other more common types of malignancies of the lung must be ruled out in any patient with hemoptysis. In view of the x-ray findings of hilar enlargement, whether due to secondary adenopathy or a primary tumor, elevation of the left main stem bronchus, and elevation of the left hemidiaphragm indicating compression of the left phrenic nerve, we should strongly suspect a new growth in this case.

Dr. Reed: Dr. Heilbrunn, what was your diagnosis prior to endoscopy?

Dr. Heilbrunn: The planograms, which we also had available, showed that the enlargement at the left hilar area probably represented segmental atelectasis. Our preoperative diagnosis was a neoplastic process involving the left upper lobe bronchus. At the time of bronchoscopy, the left main stem bronchus was elevated and it was very difficult to get the bronchoscope into this area. We managed to just barely see the left upper lobe orifice, however, and here we saw a hemorrhagic mass. This was biopsied with some trepidation. At the same time, because of the presence of a mass in the left upper lobe bronchus which looked neoplastic, a left scalene fat pad dissection was done.

Dr. Reed: Did the patient bleed after the biopsy?

Dr. Heilbrunn: No.

Dr. Reed: Dr. Mantz, what did the Papanicolaou smears of the sputum show?

Dr. Mantz (Pathologist): I think that this case is somewhat unique from the cytologic point of view. Scattered about throughout the sputum are clusters of cells which are quite abnormal. They tend to be tightly cohesive and appear almost organoid in that they form ovoid or sometimes elongated clusters of cells. The individual cells appear quite discrete. Their nuclei are relatively large and hyperchromatic. Although they are not as irregular in outline as one usually associates with malignancy, they occupy so much of the cellular structure that nucleocytoplasmic disproportion must be suspected. Not all of these cells are exactly alike. An occasional cell has a somewhat indented nucleus and a great mass of cytoplasm around it and several large vacuoles within it. The possibility exists that it may be a macrophage or a reticuloendothelial cell, but the nucleus is not of this character and the cytoplasm does not have the dirty green color and the inclusions of granular material within by which specific identification can be made.

More striking are other cellular configurations consisting of large clusters of cells with sort of a tail of additional cells emanating from it (*Figure 1*).

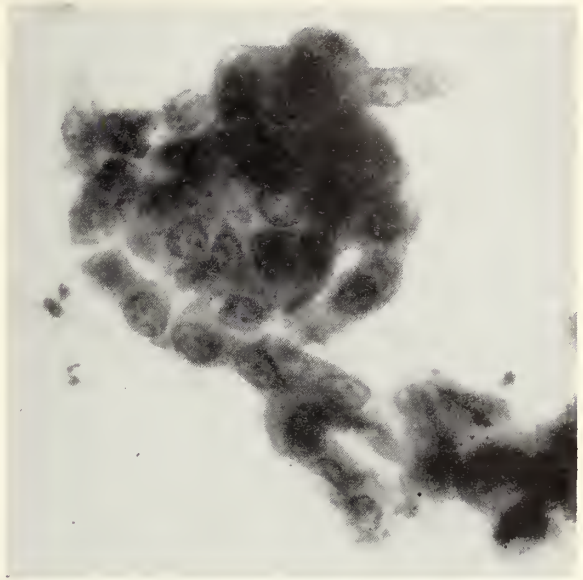


Figure 1. Sputum smear showing a cluster of cuboidal cells with nucleocytoplasmic disproportion forming a discrete gland-like structure. (x500)

These cells are of cuboidal variety and do not resemble bronchial epithelium. Furthermore, the more organoid masses have regular borders that suggest that they may represent an acinar arrangement. In another group, the cells are arranged as though they are attempting to form a gland-like structure and indicate the possibility of overgrowth of individual cells within them in a manner that would strongly suggest malignancy. We were highly puzzled by this appearance. We were reluctant to pass them off as permitting only a suspicion of malignancy, but we could not consider them overtly malignant cells arising conventionally from the surface epithelium of the bronchus. The thought occurred to us quite strongly that this might represent a metastatic lesion and of all the metastatic lesions observed within the lung, those originating in the breast are most likely to form clusters of cells such as these. Just how wrong we were will be revealed subsequently.

Dr. Reed: Dr. Heilbrunn, would you describe the operative findings?

Dr. Heilbrunn: The bronchial biopsy was reported as showing a bronchial adenoma while the left scalene lymph nodes were free of tumor. Realizing that this was a rather young woman, there was some debate as to whether we should proceed to do a pneumonectomy or attempt to conserve the left lower lobe.¹ At the time of bronchoscopy, the view from the bronchoscope was such that just the lip of the orifice of the left upper lobe bronchus could be seen with that of the left lower lobe bronchus and the mass appeared to be at the junction of these

bronchi. The bronchograms suggested that the origin of the tumor was in the anterior segmental bronchus rather than at the left upper lobe orifice itself because the other two segments of the left upper lobe had filled quite adequately.

At the time of thoracotomy, we saw that the anterior segment of the lobe was atelectatic, whereas the remaining portion of the left upper lobe was aerated. We proceeded to perform a left upper lobectomy in the usual manner until we got down to the bronchial division. Then we opened the left main stem bronchus and saw the tumor mass projecting out of the left upper lobe bronchus (*Figure 2*). To be sure that we were well around this area, we decided to resect the wall of the main stem bronchus adjacent to the orifice of the upper lobe bronchus with the left upper lobe. Following this, the main stem bronchus would not close without buckling. Therefore, we divided the bronchus to the lower lobe, trimmed it, and did an end to end bronchial anastomosis to reconstruct the airway. We obtained frozen sections which indicated to us that the line of resection was free of tumor. Thus, we were able to save the lower lobe of the left lung.

Dr. Reed: The chest roentgenogram showed that the left hemidiaphragm was elevated. At operation did the diaphragm move, or was there compression of the left phrenic nerve?

Dr. Heilbrunn: No, the left phrenic nerve was not compressed. The elevation of the left hemidiaphragm was due to partial atelectasis of the upper lobe of the left lung.

Dr. Reed: Dr. Mantz, would you discuss the pathologic aspects of the case?

Dr. Mantz: Bronchial adenomas tend to occur in the younger age groups. They lack the usual sexual distribution as observed in lung carcinoma, being slightly more prevalent in females than in males. These tumors are noted more frequently in the lower lobes than in the upper lobes. They are almost invariably, but not universally, derived from bronchi of the secondary and tertiary order. They are, therefore, most frequently observed in the vicinity of the hilum.

The tumor in this case was a very soft, friable lesion measuring approximately one by two cm. in greatest diameter. Its external surface was ulcerated. This has probably been accentuated by the fact that a biopsy was obtained. The ulceration explains why abnormal cells were obtained in the sputum. The literature indicates that cytology is of absolutely no use in the diagnosis of bronchial adenoma. This is the second time that I have seen abnormal cells in the sputum or bronchial washings of such a patient, both of which exhibited hemoptysis. I am now con-

vinced that if these lesions ulcerate as manifested by bleeding, one can anticipate recovery of cells which will not look like bronchial epithelium and will not have the cytologic features of the conventional carcinomas of the lung.

This particular lesion was located in such a way that both the clinicians and the radiologist were correct. It apparently arose from the left upper lobe bronchus at the site of the anterior segmental bronchus take off (*Figure 2*). The greater bulk of the lesion was found occluding the anterior segmental



Figure 2. View of tumor mass protruding from the left upper lobe bronchus.

bronchus but it protruded into the upper lobe bronchus as well. These tumors are usually described as being "ice berg" in type with only a portion of their substance projecting above the surface and their greater bulk extending deeper into the wall of the bronchus. In this particular case, we see a reverse "ice berg." The greater portion of the tumor presented outward into the bronchial lumen in a polypoid fashion. Sectioning of the bronchial wall did not suggest a significant degree of invasion.

Bronchial adenomas, in general, fall into two types.² One category resembles tumors of the salivary gland which are largely of the cylindromatous variety, i.e., cylindroid masses of tumor filling the tissue

spaces and extending rather widely. A malignant variant of this is mucoepidermoid tumor, identical in every respect to the mucoepidermoid carcinomas of salivary gland origin. The second type simulates the carcinoid tumors of the gastrointestinal tract, and how closely this similarity can be is quite amazing.

A section from the upper lobe bronchus just at the origin of the anterior segmental bronchus shows a polypoid lesion which extends into the bronchial lumen. The tumor is highly cellular and there is extensive necrosis with ulceration which depicts the clinical history very well. The margins are fairly sharply demarcated but no encapsulation is evident. A low power view shows the classical appearance of a bronchial adenoma, i.e., the presence of an intact surface epithelium showing some atrophy and squamous metaplasia indicating that these lesions are not of surface origin but apparently are derived from cells deeply situated and in the glands of the bronchial mucosa (*Figure 3*). The tumor is composed of cells of uniform appearance arranged in nodular masses which probably gave rise to the rounded structures observed cytologically.

The lesion very closely resembles the carcinoid tumor of the intestines. It is composed of discrete masses separated by fine trabeculae of connective tissue in which are minute capillaries (*Figure 4*). In addition, there are vast lakes of blood in some areas resulting in a high degree of vascularity. Many thoracic surgeons never biopsy lesions which they suspect are bronchial adenomas without a complete setup at hand for immediately doing a thoracotomy with

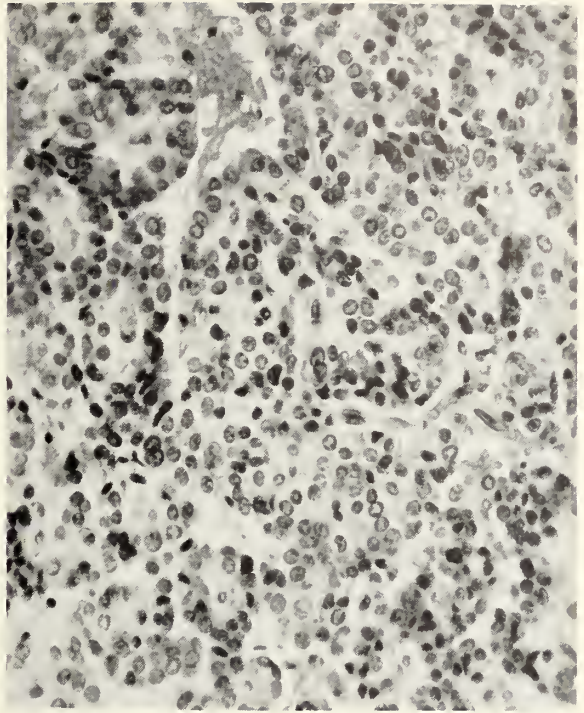


Figure 4. High power view showing nodular masses of uniform cells separated by highly vascular trabeculae of connective tissue. (x325)

resection, because they have learned bitterly that manipulation of these lesions may bring about a rather brisk and frightening hemorrhage.

These tumors are quite erroneously classified by some as benign neoplasms. All bronchial adenomas, of whatever the type, are low-grade malignant neoplasms and the one most likely to metastasize is the carcinoid variety. On the other hand, the one most likely to be locally invasive is the cylindroid or the "salivary gland" type.

In this case, the tumor is quite aggressive. There is downward extension with involvement of the perichondrium of the bronchial cartilage and invasion and destruction of the adjacent bronchus. A more ominous sign is the extension of tumor cells into the perineural lymphatics, a characteristic of malignant behavior. Two lymph nodes were found, neither of which contain any evidence of tumor.

The anterior segment of the left upper lobe shows a significant degree of atelectasis. It is somewhat more usual to see in addition to atelectasis, evidences of obstructive pneumonia which may consolidate a segment and produce a massive shadow radiologically, leading to the misinterpretation of a tumor of far larger proportions than the obstructing lesion.

Dr. Hopkins (Resident in Surgery): Does this tumor produce serotonin?

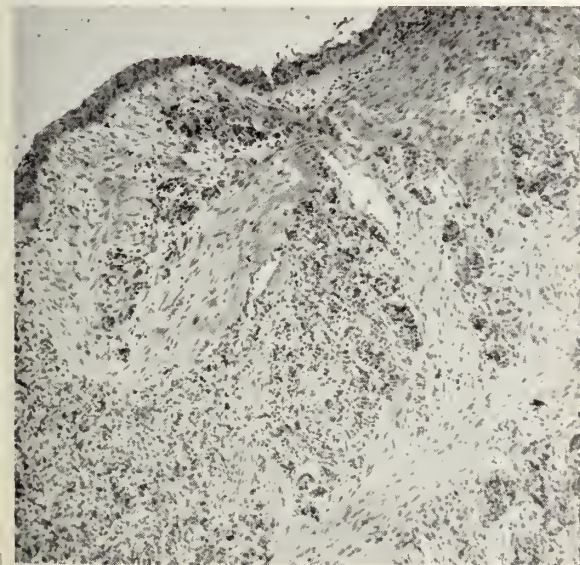


Figure 3. Section showing an intact bronchial epithelium underneath which are infiltrating masses of tumor cells. (x80)

Dr. Heilbrunn: This lady described symptoms rather suggestive of hot flashes, flushing of the skin and diarrhea. In view of the diagnosis of bronchial adenoma of the carcinoid type after bronchial biopsy, the patient was seen by an endocrinologist from the Department of Medicine. He thought that these symptoms were consistent with the carcinoid syndrome. The gynecologist who evaluated her for prolonged lactation, hot flashes and amenorrhea thought that she had hypothalamic amenorrhea with autonomous luteotrophic hormone production and that her symptoms were not related to the carcinoid tumor. The urine assay for 5-hydroxyindoleacetic acid was negative.

Dr. Mantz: Cells of intestinal carcinoid tumors usually contain a peculiar, faintly yellow-brown pigment in the cytoplasm which is known as Ersparer's pigment or enterochromaffin granules. This is thought to represent serotonin. We could not demonstrate this substance in this lesion by the histochemical techniques available. It is well established, however, that rare cases of the carcinoid type of bronchial adenomas can behave in a manner, endocrinologically speaking, similar to carcinoid tumors of the bowel.³

Dr. Hartman: I see that a gastrointestinal survey was done. Was this procedure performed to look for a primary lesion in the gastrointestinal tract?

Dr. Heilbrunn: As the bronchial biopsy revealed a carcinoid lesion, a gastrointestinal survey was done to see if other carcinoid tumors were present in the gastrointestinal tract. No abnormalities were found.

Dr. Reed: Was her postoperative course uneventful?

Dr. Heilbrunn: Her postoperative course was smooth and uncomplicated and she was discharged on the ninth day after operation. I saw her in the clinic three weeks postoperatively at which time hemoptysis and soreness of the left chest had disappeared and a sense of well-being was restored.

Dr. Reed: The operative procedure that was selected is a little unusual. With bronchial adenoma, attempts to preserve as much pulmonary tissue as possible are always indicated. A pneumonectomy in the younger age patient may or may not give rise to difficulties later in life. Since the margin of excision was thought to be free of tumor, the preservation of her left lower lobe may prove to be beneficial.

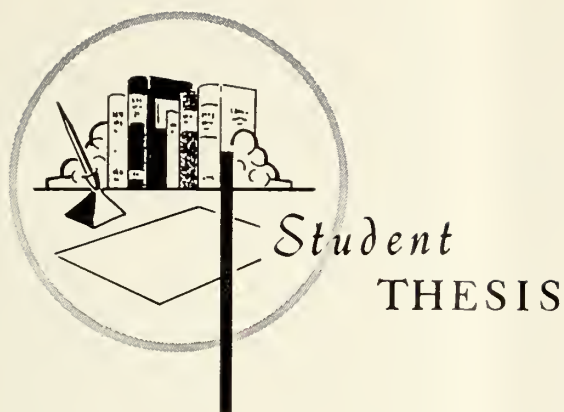
Dr. Mantz: It should be emphasized that the detection of bronchial adenomas by means of cytologic study is exceedingly difficult. Many authorities⁴ deny that detection is possible due to the fact that the lesion is submucosal in location. From this case, we have seen that exfoliation may occur when the surface becomes ulcerated. Although the cells were misinterpreted as probable metastatic tumor, we feel that the cytologic findings are the most significant aspect of the case, suggesting that further study of this problem will be worthwhile.

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THE RESPONSIBILITY OF THE DRUG INDUSTRY

The activities of the universities and their research laboratories and those of the pharmaceutical industry are not competitive but complementary. There is an increasingly broad overlapping of interests. Both do and should have large and effective research programs. It is the prime function of the one to probe and to teach, and it is in our American system the function of the other to do research with the aim of finding and developing new health-giving aids which will come slowly or not at all if we place our dependence upon the government, or for that matter on universities, either state or private.—Lowell T. Coggeshall, M.D., Vice President, University of Chicago.



The Use of Cation Exchange Resins in Hyperkalemia

JACK M. MOHLER, M.D., *Kansas City*

HYPERKALEMIA in a critically ill patient presents a grave medical problem. The potential lethal effect of an elevated serum potassium is well known to physicians. This danger is particularly grave in the patient with renal failure who loses the ability to excrete potassium. Numerous medical and surgical methods are currently used to treat this critical problem. None of these methods is completely satisfactory. The goal in all the different forms of therapy is the same, to reduce the serum potassium levels to safe margins and give the kidneys additional time to repair themselves.

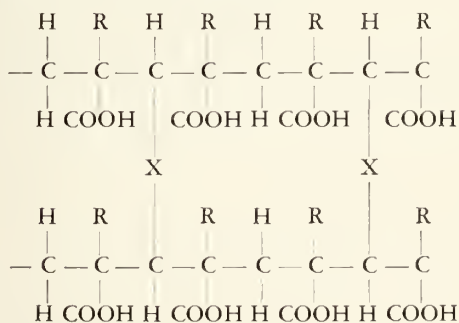
Since 1950 a new medical means of controlling hyperkalemia has received sporadic attention. Cation exchange resins were initially used to reduce gastric acidity in ulcer patients. In 1950 Elkington suggested their use in hyperkalemia. Since then new improvements in ion exchange resin therapy have led to a need for a reappraisal of their practical use.

Structure

Ion exchange resins are insoluble macromolecules. They have the property of interchanging mobile

cations with cations in surrounding solutions. The molecule has two basic components, a framework of polymerized hydrocarbons held together by cross-linking agents and radicals that act as the sites for ion exchange.

Certain natural occurring substances, such as clays, exhibit the properties of ion exchange. The resins that are used in medicine and industry are made synthetically. The synthetic resins are controlled during manufacture to insure uniformity of structure. This uniformity of structure increases the specificity of the resins by limiting the type of chemical reaction that will occur at the ion exchange sites.



This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Jack M. Mohler is now serving internship at the University of Kansas Medical Center, Kansas City, Kansas.

In this example the framework of the resin is made of a polymerization of alkylacrylic acid and formaldehyde. The polymers can be made of any number of synthetic or natural substances. The polymers are hydrophilic and tend to go into solution. This is

prevented by crosslinking agents that hold the polymers together. Crosslinking may be accomplished by any number of compounds such as styrene, divinyl benzene, or trivinyl benzene. They hold the polymers together and support the three dimensional structure of the resin.

The crosslinking agents form a latticework of pores on the surface and throughout the resin. Through these pores the exchanging ions must move to enter or leave the mass of the resin. The size of the pores is determined by the length of the crosslinking agent and the distance between the agents. In the medically useful resins the pore size varies from 5 to 15Å in diameter. This mechanically limits the size of the ion that can gain access to the resin mass. In effect the pores act as sieves that can keep out macromolecules and organic ions. The mechanical restriction of large ions increases the specificity of the resin by limiting the size of the ion that can be exchanged.

When a resin is immersed in water its dry weight is increased by about 70 per cent. This additional weight represents water absorbed by the resin. This is referred to as resin swelling. Swelling is important in the specificity of a resin. The reasons for this are poorly understood. One factor in this is that the fewer the crosslinking agents the more a resin structure can expand when immersed in water. This increases the swelling of a resin and with the larger volume of water, equilibrium is reached quickly. In contrast, with the increased pore size and loss of mechanical restriction the selectivity of a resin is reduced. Resins that are held tightly together by numerous crosslinkages swell less when they are placed in water and take longer to reach an equilibrium. They have the advantage of an increased selectivity because of the reduced pore size. Medically useful resins are a balance between these two desirable effects.

The selectivity of resins is directly proportional to the number of crosslinkages. The increasing sieve action of the crosslinking limits the use of this phenomenon. By increasing the number of crosslinks, the mechanical resistance to cation movement is increased, thus large ions are prevented from entering the resin. When this occurs the rate of ion exchange is reduced undesirably. Medically used resins are a balance between the desirable effect of mechanical restriction of undesirable ions and the consequent slowing of cation movement.

The reactive groups that serve as the site for ion exchange are attached to the polymers of the crosslinking agents. For medical purposes the two types used are carboxylic ($R-COOH^+$) or sulfonic ($R-SO_3H^+$) groups. The anion radicals are attached to the polymer or crosslinks and determine the electrostatic charge of the resin. The cations are mobile and can be replaced by other cations; but at all times

electrical neutrality of the resin is maintained. The carboxylic radical has a low hydrogen ion dissociation and it acts as a weak acid. Ion exchange is most successful at a pH of 8 and above; and therefore exchanges ions most effectively in the alkaline intestine. In contrast the sulfonic radical has a high hydrogen ion dissociation. It acts as a strong acid, and it can exchange ions at pH 3 and below.

The mobile cation of the resin can be replaced by other cations if electrical neutrality of the resin is maintained. The hydrogen ion of the carboxylic or sulfonic radical may be replaced by potassium, ammonia, or sodium ions. This determines the phase or cycle of a resin. A resin may have the hydrogen ions replaced by sodium ions, and it is then considered to be in the sodium cycle. Since the anionic radical is fixed to the resin and the cations are mobile, the resin can act as an acid or a salt. In the hydrogen cycle the resin acts as an insoluble, porous acid with its strength being determined by the hydrogen dissociation. In the sodium or potassium cycle the resin acts as an insoluble, porous salt.

General Properties

When a resin is placed in a solution the pores are filled with water causing swelling of the resin. Ions that are not mechanically restricted by pore size are free to move into the resin. The resin maintains electrical neutrality and since the anions are fixed to the resin only cations are free to move in the water.

A resin does not completely exchange its mobile cations but rather an equilibrium is reached with the surrounding solution. For example when resin R with mobile ion A^+ comes into contact with a solution containing cation B^+ then water with cation B^+ will diffuse into the resin and cation A^+ will diffuse out of the resin. Depending on the equilibrium A^+ and B^+ will be found in different concentrations in the body of the resin and in the surrounding solution. The speed with which this equilibrium is reached is partially dependent on the percentage of ion exchange that occurs at the surface of the resin in contrast to the exchange that occurs within the mass of the resin. Resins of small particulate size have a proportionally higher percentage of ion exchange occurring at the surface. In larger resins more of the reactive groups are within the mass of the resin, thus cations are required to move within the resin before equilibrium can be reached. As has already been stated, the pore size of the resin influences the speed that equilibrium is reached. Decreasing pore size increases the mechanical resistance to ion movements within the resin and increases the time required to reach equilibrium.

The equilibrium reached between the resin and the surrounding solution is influenced by the Donnan equilibrium concept. The anions are fixed to the resin.

The cations in turn are free to move but must maintain resin neutrality. If a difference in cationic concentration between the resin and the solution exists then the cations will diffuse from the area of higher concentration to an area of lower concentration. This will occur unless they are mechanically restricted by pore size. It would be expected that an equilibrium would be reached that maintained resin electrostatic neutrality and equalized the differences in concentration. This is not the case. The Donnan equilibrium is important in the dynamics of ion exchange but when more than one cation is available for exchange a degree of selectivity for specific cations is exercised by the resin. This selectivity seems to be inversely related to the diameter of the hydrated ion. When ions move in a solution they attract a covering of water molecules. As they move through a solution they carry this coating of water with them. This is called the water of hydration. As the ion increases in size water is held closer to the nucleus of the ion. This reduces the radius of the hydrated ion and increases its affinity for a resin. It is thought that the reduced hydration radius allows the ion to be bound closer to the fixed anion. It is then more difficult for the ion to be displaced by another cation.

The order of increasing ion size, but decreasing hydration radius, is also the order of increasing cation affinity between the resin and cation. The order of increasing resin affinity can be listed as:



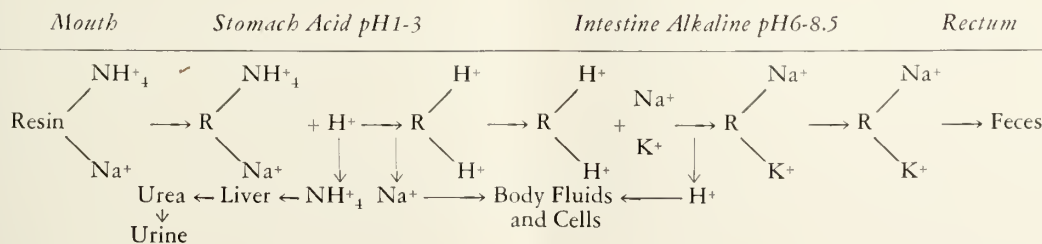
Thus potassium with its smaller hydrated radius is exchanged in preference to sodium, ammonium, or hydrogen by the cation exchange resin.

Two experiments have dramatically shown the ability of cation exchange resins to lower serum potassium. Fourman in 1954 took three normal subjects and tried to lower their serum potassium with cation exchange resins. He used a commercially available resin, Zeokarb 225, in the H^+ or Na^+ cycle. The subjects were given 60 to 90 grams of the resin daily for 12 to 16 days. Serum electrolytes, nitrogen, and changes in the urinary excretion of water, acid and

ammonium were measured. Chemical evaluation was started eight days prior to giving the resin, during the experiment, and in two experiments for eight and 12 days after giving the resin. During the three experiments 340, 670, and 840 mEq. of potassium were withdrawn from the body. In the last two cases this represented 28 per cent and 29 per cent of the exchangeable body potassium. During the experiment extracellular acidosis developed with plasma levels of bicarbonate falling to 17, 12, and 15 mEq. per liter.

In 1959 Humphreys evaluated the effect of cation exchange resins on the total survival time of anuric dogs. He produced renal failure in 24 mongrel dogs by ligating the ureters bilaterally or performing total bilateral nephrectomies. He then separated the dogs into six groups and varied their postoperative care. The first group received no food or water; the second received water and isotonic saline sufficient to replace insensible loss; the third received 5 per cent or 10 per cent dextrose and water to replace insensible loss; the fourth got water and a cation exchange resin without a high caloric diet; the fifth water and a high caloric diet; and the sixth group received water, a high caloric diet and cation exchange resins. The dogs were followed with daily body weights and blood electrolytes. The dogs in the first three groups died within 97 hours, with the exception of one that lived for six days. These groups represented a total of 16 animals. The two dogs on water and resin only, survived five and six days. The two dogs on a high caloric diet and water survived up to seven and one half days. The four dogs that were given water, a high caloric diet, and the cation exchange resin survived eight to nine and one half days. Except for one dog who was badly infected none of the dogs that survived eight to nine days had serum potassium levels over 5 to 6 mEq. per liter. The dogs that died within the first four days and did not receive resins or high caloric diets had serum potassium levels of 8 to 9 mEq. per liter prior to death.

The cation changes that occur following ingestion of a cation exchange resin can be illustrated in this way:



The cations that are bound to the resins (H^+ , NH_4^+ , Na^+ or K^+) are exchanged during the transport of the resins through the gut. The exchangeable cations vary at different levels in the intestinal tract. The cations available and pH changes of the surrounding solution directly influence the exchange characteristics of the resins.

Ion exchange usually does not occur in the mouth. The resin is usually ingested and quickly moved to the esophagus and on into the stomach. The sulfonic resins have on occasion caused chemical burns of the mouth due to their highly acid character. This has occurred when the sulfonic resins were given only in the H^+ cycle. To circumvent this problem sulfonic resins should be given in the salt phase (NH_4^+ , Na^+ , or K^+ cycle) or in mixtures with the H^+ cycle. By reducing the percentage of resin in the H^+ cycle the dissociated H^+ concentration is reduced and the tendency to burn alleviated.

In the stomach the acid pH converts all the exchangeable cations of the carboxylic resins to hydrogen. Due to the weakly acid character of the carboxylic resins, actual exchanging of cations is restricted to the hydrogen ion. Sulfonic resins can exchange cations without being restricted to the hydrogen ion because of their strong hydrogen dissociation. This is of little ultimate value since the resins re-exchange cations in the intestines.

The exchangeable cations are released in the stomach following replacement by hydrogen ions. These ions, namely Na^+ , K^+ , NH_4^+ and H^+ , are absorbed into the body and metabolized. The exchanged sodium ions move into the extracellular space, and they have the potential of increasing total body water, thus increasing the danger of water retention and pulmonary edema. This has not proved to be a major problem since the water intake of an anuric patient is limited to replacement of insensible water loss. The additional sodium is also thought to be beneficial in buffering retained metabolic acids. Potassium absorption could be a problem if potassium cycle resins should be used in an anuric patient. Because of the danger of increasing hyperkalemia the potassium cycle resins are contraindicated. Ammonia cycle resins are potentially dangerous if used in a patient with liver damage. Normally ammonium is transported by the blood to the liver where it is metabolized to urea. If ammonium cycle resins are used in patients with liver damage the increased blood ammonium levels may precipitate hepatic failure. Hydrogen ion absorption has the potential danger of increasing acidosis in the uremic patient. This is characterized by a decreasing CO_2 combining power, a rise in serum chlorides and nitrogen, and a fall in bicarbonates. The danger of increasing the existing acidosis can be circumvented

by combining the salt and acid phase of the resin. In this way reduced amounts of the hydrogen cycle may be used with an increased amount of sodium or ammonia cycle resins. The patient can get the full benefit of the resin without being overloaded with any specific cations.

After leaving the stomach the resins move through the intestines reaching a final exchange equilibrium in the large bowel. Like the kidney, the colon is an effective sodium conserving organ. Sodium is actively absorbed in the colon and thus, the colon competes with the resin for the available sodium. The colon does not actively conserve potassium, consequently, potassium is readily available in the colonic secretions. This phenomenon is particularly helpful in resin therapy of hyperkalemia since a high potassium concentration is available for exchange in the colon. The final equilibrium reached by a resin prior to excretion in the feces is, thus, in a solution of high potassium concentration.

Other ions, such as calcium and magnesium, may be picked up by the resin. These ions are found in such low concentrations in the large bowel that serious complications have rarely been a problem. Hypocalcemia has proven to be a danger only in long term resin therapy. Periods of therapy extending five to ten months have been required before signs of tetany have been noted. In the short term treatment of acute renal failure with hyperkalemia this has not been a problem.

Clinical Application

In 1950 Elkington published the results of his treatment of three anuric patients with cation exchange resins. This was the first time that the cation exchange resins had been clinically used for hyperkalemia. The serum potassium in these patients ranged from 7.4 to 8.1 mEq. per liter. By administering the resins orally or rectally, he was able to induce a 20 to 73 mEq. daily loss of potassium.

Since the initial work by Elkington, larger therapeutic series have been reported. Palmer in 1959 reported his results following administration of cation exchange resins to 13 cases of acute and four cases of chronic renal failure. All these cases were complicated by hyperkalemia. The resins were given orally, by nasogastric tube or by high retention enema. Larger doses were given by enema than could be tolerated by mouth, 25 gm. of resin in 200 ml. warm water as compared to 10 gm. with 2 ounces of cooked cereal by mouth. The dosage was repeated every four to 12 hours depending on the severity of the hyperkalemia. The results of therapy are as follows:

Route of Administration

	ORAL (10 PATIENTS)	RECTAL (7 PATIENTS)
mean No. of days of therapy	3.9	2.5
mean daily dose in g.	43.0	64.0
mean of serum K at start of therapy mEq./l.	5.9	6.3
mean of serum K at end of therapy mEq./l.	4.7	4.2
mean rate of fall of serum K mEq./day	0.3	0.8

tremia, or acidosis were not complicating factors during treatment.

Resin therapy is ineffective in producing a sudden change in potassium blood levels. Results can be seen within 24 hours following initiation of therapy. Anticipating the rise of serum potassium in the anuric or oliguric patient, resin therapy should be instituted in time to prevent toxic levels of hyperkalemia. If therapy is initiated whenever potassium levels exceed 5 mEq. per liter or whenever there is a sudden rise in potassium blood levels hyperkalemia can usually be prevented.

Therapeutic doses vary from 10 to 60 grams of resin with 100 to 200 ml. of water orally. If given rectally 10 to 25 grams may be infused in a small amount of water or 10 per cent hypertonic glucose solution. The desired dosage of the resin may be repeated every four to 12 hours depending on the clinical status of the patient.

There are no therapeutic differences between the effect of the carboxylic acid resins and the sulfonic acid resins. There are differences between the two types of radicals as to their physical action on the patient. Chemical burns have occasionally occurred in the mouth because of the stronger acid qualities of the sulfonic acid resins in the hydrogen cycle. This characteristic has been circumvented by changing the percentage of H⁺ cycle to other cycle resins. One investigator has successfully used a ration of 70 per cent H⁺ cycle resins and 30 per cent Na⁺ cycle resin without noting any chemical burns in the mouth. The sulfonic acid resins have the advantage over carboxylic acid resins in being more palatable for the patient.

As exemplified by the two series described above there are reported differences in effectiveness of enema therapy in contrast to oral therapy. When patients are nauseated and vomiting the use of resin by enema is indicated; otherwise the choice of oral or enema therapy is left to the personal preference of the physician. With enemas the patient should be placed on his right side with the hips slightly elevated. The enema is better tolerated if it has been warmed to body temperature and is given slowly. Topical anesthetics may be applied to the perianal area to reduce mechanical irritation. Cleansing enemas should be given every 24 to 48 hours to prevent constipation.

Nasogastric tube administration of resins has not been uniformly satisfactory. The tendency to form concretions when the resin dries obstructs the tube. Extra nursing care is required to keep the tube unobstructed and is the major undesirable feature.

No toxicity has ever been reported as a result of the resin itself. Patients have complained of the taste, particularly the bulk and consistency of the resin. Other side effects that have been noticed include mild epigastric burning, abdominal distention,

Reduction in serum potassium was noted within 24 hours and normal values were reached within 72 hours. Resin therapy was started in the oliguric patient when serum potassium went above normal or started rising. Therapy was discontinued when serum potassium levels returned to normal to prevent hypokalemia. Tetany and acidosis were not found to be a problem.

In January, 1961 Scherr reported his results following the use of cation exchange resins in 32 patients. He used a sodium-cycle sulfonic polystyrene resin because of its superior palatability when compared to carboxylic acid resins. Twenty-three of his patients were in the oliguric phase of renal failure excreting less than 400 ml. of urine daily. The etiology of the renal failure included: acute and chronic glomerulonephritis, postoperative renal failure, renal failure due to toxins or bacteria, diabetic glomerulosclerosis, crush injuries, and chronic pyelonephritis. When possible the resins were given orally in dosages of 20 to 60 gm. with 100 to 200 ml. of water. When the resins were given rectally 10 to 20 gr. were given with a small amount of water. The patients in the oliguric phase also received 600 ml. of 20 per cent dextrose and water intravenously and small oral supplements of a high calorie, low potassium diet. Twenty-two patients received oral resin medication, eight received resin enemas and two were on long term (35 and 280 days) oral therapy. Thirty of the patients had a satisfactory response to therapy. They either showed a fall in serum potassium or failed to show any increase in serum potassium levels following the initiation of therapy. The patients on oral resin therapy had a mean fall in serum potassium of 1 mEq. per liter, those on high retention enema had a mean fall of 0.8 mEq. per liter. In two cases the resin failed to control hyperkalemia. In these cases the clinical situation was associated with excessive tissue damage or infection. Satisfactory control (4.2 and 6.3 mEq. per liter of plasma potassium) was obtained in the two patients on long term therapy. Although constipation was occasionally noticed with resin therapy it was successfully controlled by enema. Hypocalcemia, hyperna-

cramping, fecal impaction, and diarrhea. None of these complications have been serious enough to require termination of therapy. Blood electrolyte changes are possible because of the introduction of cations from the exchanging resin. Hypernatremia although theoretically possible has not been a problem. Hypocalcemia with clinical tetany has been reported; however, as has been stated, this was following long term resin therapy and has not been seen in short term treatment of acute renal failure. Additional calcium may be given in the form of calcium lactate (5 grams per day), if changes in serum calcium are detected. Hypokalemia has occurred with resin therapy. This occurs when treatment has continued after plasma blood levels returned to normal and can be prevented by terminating therapy when plasma potassium returns to 4.5 mEq/per liter. Acidosis has been observed by numerous investigators. Currently it has not been a problem since the amount of hydrogen ions released to the body may be controlled by varying the ratio of different resin cycles. To anticipate possible electrolyte complications and to evaluate the response to treatment close observation of blood electrolyte changes must be made. Acidosis, hypocalcemia, hypernatremia, and hypokalemia can all be diagnosed and therapeutic changes instituted if the changes in blood electrolytes are followed closely.

The delay in response to resin therapy limits its use if there is clinical or electrocardiographic evidence of serious hyperkalemia. When there is an urgent need to reduce toxic levels of serum potassium hemodialysis remains the most effective form of treatment. The cation exchange resins make their greatest therapeutic contribution in preventing toxic levels of potassium from developing. By instituting therapy early in the course of renal failure serious hyperkalemia may be prevented. If hyperkalemia is not prevented the continuous use of cation exchange resin reduces the number of times an anuric patient will require hemodialysis.

Cation exchange resins cannot cure the cause of renal failure. Recovery comes only when the individual patient can repair the renal damage with his own recuperative powers. Cation exchange resin can help prevent the early demise of the patient secondarily to toxic blood levels of potassium. In this preventive role cation exchange resins are of greatest value in the management of the patient with renal failure.

Summary

Cation exchange resins given orally or rectally can reduce total body potassium.

The resin structure consists of polymerized hydro-

carbons held together by crosslinking agents and attached reactive exchange groups. Exchange groups attached to the resin structure are of two types, carboxylic acid or sulfonic acid.

The cation exchange resins have an affinity for potassium over other ions. In the colon high potassium concentrations are available for cation resin exchange and later removal from the body by feces.

Cation exchange resins are an effective way of reducing elevated serum potassium and maintaining normal potassium levels in patients with renal failure. Their greatest therapeutic value is as a preventative drug in treating potential hyperkalemia.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th St., Topeka, Kansas.

PARKINSON'S DISEASE

"What You Should Know About Parkinson's Disease" a precise and frank question and answer guide for laymen and physicians has been prepared by the National Parkinson Foundation, Inc., 135 East 44th Street, New York 17, New York. It is being made available without cost by the Foundation and its Chapters.

The material was prepared by Dr. Lewis J. Doshay, internationally known authority on Parkinson's Disease and Chairman of the NPF Medical Advisory Board.

The Guide answers such questions as the nature and types of Parkinson's Disease, the effect of prompt treatment, the outlook for victims of Parkinson's Disease; also covered are questions concerning inheritance, contagion and paralysis from Parkinson's Disease.

Dr. Doshay has written many medical articles and is the author of "Parkinson's Disease, Its Meaning and Management." He is attending neurologist, Neurologist Institute of Presbyterian Hospital, New York City.

"What You Should Know About Parkinson's Disease" is one of a series of aids available to Parkinson victims, their families and the general public without cost under the "Parkinson's Determined" program of the National Parkinson Foundation. Other material available includes: "A General Exercise Guide for Parkinson's Disease Patients" and reprints of medical articles prepared by members of the NPF Medical Advisory Board.

Our opinion of people depends less upon what we see in them, than upon what they make us see in ourselves.—*Sarah Grand*

The President's Message

DEAR DOCTOR:

At this time of year, with the change of officers of your society, the Kansas Medical Society finds itself confronted with many problems. These are no greater than the problems which have confronted it in the past or will be present in the future.

The problem of committee appointments was solved by the response of the membership for their preferences. More than three hundred and seventy-five replies were received. Your president wishes to express his satisfaction and deep appreciation. It indicates a marked interest in the affairs of the society and not the usual apathy that surrounds most societies. Provided this interest holds, when committees meet, certainly new ideas will be developed and instituted in the respective committees, which will continue to denote the Kansas Medical Society as one of the progressive state medical societies of these United States.

A new committee has been appointed, with approval of the council, to study, evaluate, and present policies for the organization of our society. This is being done in an effort to anticipate the needs of the future. Any ideas the membership has on this subject are solicited, and will be considered by this committee.

Through these words, your president wishes to convey his gratitude to the membership for their support at this date, and in the future. It is his hope that he will be able to provide the leadership this year, in the same tradition, that has so distinguished his predecessors. He further prays, in all humility, that when he has served his term, he will have retained your confidence to the same degree with which you elevated him to this highest office.



Norton L. Francis M.D.

President



Evolution

Among the changing concepts of this era which may be recorded by future historians as a key to present unrest is the increasing collective influence of the consumer over the producer of commodities or services.

In the past, the manufacturer placed his product on the market at a cost determined by himself. Controls were only those natural economic pressures of competition on the one hand and individual consumer acceptance on the other. A similar situation prevailed for the purveyor of services. He charged what he thought the public would pay.

Today the evolution of marketing appears veering toward consumer control. Utilities and other essential services are governed by state corporation commissions or in-state commerce commissions, or similar agencies empowered to regulate in the public interest rates as well as expansion or contraction of services. Many other industries now feel the pressure of consumer control as evidenced through government which presumes to act in the public interest.

The collective bargaining power of an organization of consumers is now being felt in medicine. With ever increasing clarity the consumer is stating to medicine the conditions under which health care will be purchased. To cite only a few, labor, now the largest consumer of health service is demanding service benefits under insurance-type coverage. The government has followed a similar pattern through Medicare and other programs by way of negotiated contracts. Current proposals to add the aging population under a blanket coverage across the nation are further examples to establish a fact.

Consumer control does not necessarily result in disastrous consequences. The medical profession, recognizing the hazards of the high cost of catastrophic illness, has long endorsed the insurance principle as a means for protecting the individual against economic disaster. Public acceptance of health insurance establishes the validity of this stand. The prob-

lem, when there is one, stems from the consumer's demands for increased benefits and his high usage of service without willingly accepting increased costs.

Since the consumer and the producer of medical service both believe in insurance, the ultimate solution should pose no insurmountable obstacle provided an understanding is achieved on the cost. Somewhere the medical profession must find a voice that will explain to the public the true cost of health care. There must be a public understanding that if the usage percentage remains constant, an expanded coverage will not result in economy.

Therefore, this evolution of consumer control need not necessarily become an economic disadvantage. Where the consumer understands the cost of his purchase, a broad benefit may result. The subject, however, is of such complexity that the medical profession must inform all people of the true cost of illness or someone with less knowledge or less integrity will bring to the collective consumer inaccurate information. It is at that point where political and other controls over medicine begin to impair its effectiveness. This the collective consumer will learn when it is too late to recover unless the medical profession can give him accurate information before the situation becomes irreversible.

**USE YOUR MEDICAL
LIBRARIES
YOUR LIBRARIAN WILL BE
HAPPY TO ASSIST YOU**



Personalities—IN KANSAS MEDICINE

Dr. and Mrs. William Lentz and family have moved from Seneca to Topeka, where Dr. Lentz has begun his practice.

New officers of the Kansas Obstetrical Society are: **David E. Gray, M.D.**, Topeka, president; **Galen W. Fields, M.D.**, Scott City, president-elect; **Jack C. Schroll, M.D.**, Hutchinson, vice president; and **Edward F. Steichen, M.D.**, Lenora, secretary-treasurer.

Gerald Ward, M.D., Ellis, attended the meeting of the Central Kansas Medical Association 13th Councilor District at Hays in March. **F. E. Wrightman, M.D.**, Sabetha, was guest speaker.

G. M. Martin, M.D., Topeka, Warren Paramore, State Civil Defense, and Jim Imboden, Kansas Medical Society, presented a panel discussion on "Medical Self Help" to the Topeka Business and Professional Women's Club in March.

J. W. Randell, M.D., Marysville, recently attended a five-day seminar of the Academy of Proctology held at Miami Beach, Florida.

C. L. Francisco, M.D., Kansas City, is now a member of the visiting staff of the Anderson County Hospital. His membership was approved by the Anderson County Hospital Board of Trustees in March. Other physicians on the visiting staff are **Frank Lenski, Jr.**, Iola; **J. R. Nevitt**, Moran; **J. G. Rowlett** and **R. C. Stanley**, both of Paola.

G. Bernard Joyce, M.D., Topeka and **Spencer McCrae, M.D.**, Salina, conducted a diagnostic clinic for crippled children at Belleville in April.

Among the physicians attending the Northwest Medical Society meeting and postgraduate course at Colby in March were: **A. E. Cooper**, **Robert Long**, **Walter Furst**, Norton; **H. S. Bennie**, Almena, and **E. F. Steichen**, Lenora.

Karl E. Voldeng, M.D., Wellington, is the author of a new book, "Recovery From Alcoholism," which was published in April.

John I. Waller, M.D., Halstead, and **Charles Isaac, M.D.**, Newton, left for Peru early in April to join the American hospital ship, *SS Hope*. They will serve as instructors of urology.

Mary Evans, M.D., Mission, was guest speaker at the March meeting of the Lawrence branch of the American Association of University Women. Her topic was the "Status of Women in the World Today," with emphasis on the department of medicine.

Edward D. Greenwood, M.D., Topeka, has been elected president of the American Orthopsychiatric Association for 1962.

Newly elected officers of the Norton County medical staff are **E. E. Johnson, M.D.**, president; **Francis Kennedy, M.D.**, vice president; and **Robert Long, M.D.**, secretary-treasurer.

Emerson D. Yoder, M.D., Denton, was inducted as president of the Kaw Valley Heart Association at their annual meeting in Kansas City in March. Members of the board of the association include **A. M. Diehl, M.D.**, Kansas City; **Robert C. Fairchild, M.D.**, Mission; **Tom R. Hamilton, M.D.**, Kansas City; and **A S. Reece, M.D.**, Gardner.

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

RECENT ACQUISITIONS

- Adams, R. Diseases of muscle. Hoeber. 1962.
Baker, F. J. Handbook of bacteriological technique. Butterworth. 1962.
Bedson, S. Virus and rickettsial diseases of man. Williams & Wilkins. 1961.
Berry, E. C. Introduction to operating room technique. McGraw-Hill. 1960.
DePalma, A. F. Clinical Orthopaedics. Volume 22. Lippincott. 1962.
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Stanbury, J. Metabolic basis of inherited disease. McGraw-Hill. 1962.
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MONOGRAPHS AVAILABLE IN THE LIBRARY

Nursing

- Morrissey, A. B. Rehabilitation nursing. Putnam. 1951.
Muller, T. G. Nature and direction of psychiatric nursing. Lippincott. 1950.
Newton, K. Geriatric nursing. Mosby. 1954.
Perrodin, C. M. Supervision of nursing service personnel. Macmillan. 1954.
Roberts, Mary M. American nursing. 1954.
Sellew, G. Sociology and social problems in nursing service. Saunders. 1946.
Steele, K. M. Psychiatric nursing. Davis. 1950.
Waterman, T. L. Nursing for community health. Davis. 1952.
Wensley, E. E. Community and public health nursing. Macmillan. 1950.
William, R. C. Nursing home management. Dodge. 1959.
Windemuth, A. The nurse and the outpatient. Macmillan. 1957.

Yearbook of modern nursing. Putnam. 1956.

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Goodman, L. The pharmacological basis of therapeutics. Macmillan. 1955.
Grollman, A. Pharmacology and therapeutics. Lea & Febiger. 1960.
Modern drug encyclopedia and therapeutic index. 1961.
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Reddish, G. F. Antiseptics, disinfectants, fungicides and chemical and physical sterilization. Lea & Febiger. 1957.
Year Book of drug therapy. Year Book Pub. 61/62.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.

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Gladston, I. Behind the sulfa drugs. Appleton-Century. 1943.
Merck index of chemicals and drugs. Merck. 1960.
U. S. Food and Drug Administration. New drug regulations under the federal food, drug and cosmetic act. 1956.
Wilson, C. O. American drug index. Lippincott. 1956.
Am. Pharmaceutical Assn. The national formulary. 11th ed. 1960.
The Dispensary of the U. S. of America. Lippincott. 1960.
Advances in protein chemistry. Academic Press. 1951.
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Amino acids and peptides with antimetabolic activity. 1958.
Chemistry and biology of pteridines. 1954.
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(Continued on page 214)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

COST PERCENTAGE LOWER

There is an old psychological trick that continues to work, as evidenced every day in many ways. This is the one that if you repeat something often enough, people come to believe it, whether there is any truth in it or not.

The cost of medical care is an example of this. There is widespread belief that it has soared out of sight. The facts do not justify this at all.

Americans spend only six cents of every budget dollar on medical care. We spend nearly as much for tobacco and liquor, an equal amount for recreation, and twice as much on transportation.

There are three big items in the medical care dollar: physicians' services, drugs and hospitals. Of this medical dollar (six per cent of your budget dollar), the doctors' share has been substantially reduced; 30 cents in 1940, 28 cents in 1950, and 25 cents in 1960. The drug share was 21 cents in 1940, and 20 cents in both 1950 and 1960. Here too is a decline, although there are many more drugs, and far more effective ones than were available in 1940.

This leaves the hospitals, whose percentage rose from 18 in 1940 to 23 in 1950 and 26 in 1960. This increase resulted from the fact that more services are demanded and given, and that labor costs which are a major cost in hospital administration, have risen steadily.

However, due to better equipment in the hospitals and more effective treatment in every way, the time which one must stay in hospitals has been so sharply reduced that in many cases this more than offsets the increased day costs.

When you think of the many, many items that cost twice as much as in 1940, medical care nowadays is quite a bargain.—*Goodland Daily News*, March 18, 1962.

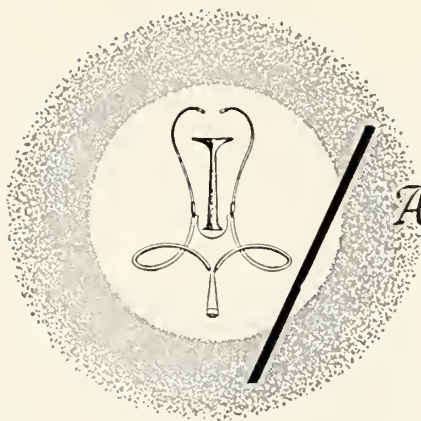
MEDICAL AID FOR AGED

Kansas and Missouri are the only two states where no legislation has been initiated to permit their states to participate in the Kerr-Mills plan for medical care for the aged. In fact Governor Anderson is reported saying that there is no great demand for any program other than what Kansas now provides. In states adopting the Kerr-Mills program, enacted two years ago, the regular welfare program becomes the framework, it paying part of the expenses of big medical bills such as physician's fees, hospitalization, nursing homes costs and medication. Benefits are determined by the size of the state's participation.

Unless the Forand bill is enacted Kansas may continue to operate without an expanded health program for the aged. It is reported from Washington that President Kennedy has reason for hope that the medical plan proposed to be saddled to the social security system may be approved this year by congress. The administration bill is bottled up in the House Ways and Means committee, which has side-tracked similar social security measures since 1957. If two Republican members could be won over the committee would report out the bill, according to Speaker McCormack, a statement which indicates that all Democrats in the committee have been lined up for the bill.

Sentiment for passage of the bill is to be whipped up by the so-called National Council of Senior Citizens for Health Care through Social Security. It is administration backed and could be the ranking domestic issue of the year. But the Forand bill appears less likely of success now than six months ago as a result of the upsurge of conservative, hold-the-line on spending sentiment.

But the 17 million voters past 65 represents a
(Continued on page 214)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The 57th Annual Postgraduate Course in Ophthalmology will be held in Estes Park, Colorado, July 9-12. The course, which has as its subject "The Medical and Surgical Aspects of the Retina" is sponsored by the Colorado Ophthalmological Society, The Division of Ophthalmology of the Department of Surgery, and The Office of Postgraduate Medical Education, University of Colorado School of Medicine. The guest speakers for the meeting are William F. Hughes, M.D., Clinical Professor of Ophthalmology, University of Illinois College of Medicine; Samuel J. Kimura, M.D., Associate Professor of Ophthalmology, University of California; Irving H. Leopold, M.D., Professor of Ophthalmology, University of Pennsylvania; and Dohrmann K. Pischel, M.D., Clinical Professor of Ophthalmology, Emeritus, Stanford University.

For further information regarding the course and reservations, contact the Office of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado.

The University of Colorado School of Medicine and other sponsoring organizations will present a three-day postgraduate conference on *THE MANAGEMENT AND REHABILITATION OF PATIENTS WITH ARTHRITIS*, July 5-7, 1962. This Conference is designed especially for the wide range of health professions active in the care of patients with these chronic and often incapacitating diseases. It is especially planned for nurses, physiotherapists, occupational therapists, social workers, hospital administrators, public health personnel, and others.

The course will offer a basic review and background information as well as a survey of new developments in many phases of the problems related to the care of patients with arthritis and related diseases. Concepts of disease mechanisms, diagnosis, manage-

ment, and rehabilitation will be among the subjects discussed.

A guest faculty will include the following physicians:

Ephraim P. Engleman, M.D., President, The American Rheumatism Association, San Francisco; Ronald Lamont-Havers, M.D., Medical Director, The Arthritis and Rheumatism Foundation, New York City; Harold S. Robinson, M.D., Medical Director of the British Columbia Section, Canadian Arthritis and Rheumatism Society, Vancouver, B. C.; and Donald L. Rose, M.D., Chairman, Department of Physical Medicine, University of Kansas School of Medicine, Kansas City.

Further information and a detailed program may be secured by writing to the: Office of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado.

The Council on Postgraduate Medical Education of the American College of Chest Physicians has planned five postgraduate courses during 1962. The courses are: *Cardiopulmonary Problems in Children*, July 23-27, Edgewater Beach Hotel, Chicago; *Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs*, September 17-21, Warwick Hotel, Philadelphia; *Clinical Cardiopulmonary Physiology*, October 22-26, Knickerbocker Hotel, Chicago; *Recent Advances in the Diagnosis and Treatment of Diseases of the Heart and Lungs*, November 12-16, Barbizon-Plaza Hotel, New York; and *Occupational Diseases of the Heart and Lungs*, December 3-7, Statler-Hilton Hotel, Detroit.

Tuition for each course is \$75.00 to members of the American College of Chest Physicians and \$100.00 to non-members.

(Continued on page 214)



Book REVIEWS

REHABILITATION OF A CHILD'S EYES, Katzin-Wilson, 107 pages, \$3.75. C. V. Mosby Co., St. Louis, 1961.

This is the third edition of this little book, first edited by Richard G. Scobee in 1949. As stated in the foreword, it is written primarily for parents of children with crossed eyes, to answer their questions, and thus to help them cooperate with the ophthalmologist in his treatment.

The authors explain in the first part, in simple language, how the eyes focus, how they work together as a team, why they cross, and the effect on the child. In the second part, they tell about glasses, orthoptics, surgery and other aspects of therapy.

This is a well-written book, not too extensive or detailed, and accomplishes adequately its purpose in a limited field.—*G.F.G.*

APPRAISAL OF CURRENT CONCEPTS IN ANESTHESIOLOGY, John Adriani, M.D., 267 pages, plus index, \$7.75. C. V. Mosby Co., St. Louis, 1961.

The purpose of this very beautifully bound and well-organized book is well-stated in the preface. It contains forty-five chapters which are purposely kept brief and are intended to give some answers to one particular problem within each chapter. These chapters seem to be quite well written; and in addition, at the close of each chapter there is a very complete list of references.

It is the type of book which one could pick up and easily find the answers to many of our current problems which are seen more or less in anesthesia.

Except for an occasional sketch showing chemical structures, the book is notable in its lack of pictures or other descriptive diagrams.

I would highly recommend this book to everyone practicing anesthesia as a very quick reference to help him understand some of the questions which come up in the clinical practice of anesthesiology.—*W.O.M.*

DISTURBANCES OF HEART RATE, RHYTHM AND CONDUCTION, Eliot Corday and David Irving, 357 pages, illustrated, \$8.50. W. B. Saunders Co., Philadelphia, 1961

This is a new book on cardiac arrhythmias and disturbances of conduction. It was written as a guide to the medical student as well as to the clinician who is interested in a physiologic approach to this problem. This book differs from the usual text on arrhythmias and conduction disturbances in that the altered physiology causing the disturbance and resulting from it are emphasized. Each arrhythmia and conduction defect is discussed from a physiologic standpoint as well as from a clinical standpoint. Various theories as to the cause of these conditions are discussed. The authors usually give their opinion as to the most likely theory and then support this opinion by citing experimental work of their own and others. The correlation of the abnormal hemodynamics resulting from the various arrhythmias and conduction defects and the resulting clinical picture is stressed.

Besides chapters on the various arrhythmias, there are chapters on cardiac arrest, hemodynamic disturbances, and arrhythmias and conduction defects associated with surgery, myocardial infarction and electrolyte disturbances. The clinician who likes to attempt to diagnose an arrhythmia or conduction disturbance before he sees the electrocardiogram will enjoy reading the chapter on the bedside diagnosis of these conditions. This is a well written chapter with emphasis placed on established physiologic principles responsible for the various physical signs present in a given arrhythmia or conduction disturbance.

Particularly valuable is the chapter on treatment of arrhythmias. This chapter mentions a number of drugs used in treatment and their cardiovascular effects. While this information is mentioned in the chapters concerning each arrhythmia and disturbance of conduction, it is handy to have it summed up in one specific chapter.

The book is written in a clear concise manner. It is amply illustrated with electrocardiograms and sim-

ple diagrams to enable the reader to obtain a better understanding of the arrhythmias and conduction defects. The book is written more for the medical student than the experienced cardiologist, but even the latter would find it a valuable book for his library. The bibliography is extensive and provides an excellent starting point for the clinician who wants to delve deeper into problems of arrhythmias and disturbances of conduction.—*W.G.C.*

From the Stacks

(Continued from page 210)

- Feigl, F. Spot tests in inorganic analysis. Elsevier. 1958.
- Jenkins, G. L. Quantitative pharmaceutical chemistry. McGraw-Hill, 1953.
- Ketelaar, J. Chemical constitution. Elsevier. 1953.
- Neurath, H. The proteins: chemistry, biological activity, and methods. Academic Press. 1953.
- Rodd, E. Chemistry of carbon compounds. Elsevier. 1951.
- Florey, M. D. Clinical application of antibiotics: penicillin. Oxford Univ. Press. 1952.
- Antibiotics annual. Medical Encyclopedia. 55/56.
- Epstein, S. Miracles from microbes. Rutgers Univ. Press. 1946.
- Goldbert, H. S. Antibiotics: their chemistry and non-medical uses. Van Nostrand. 1959.
- Schindel, L. Unexpected reactions to modern therapeutics: antibiotics. Thomas. 1957.

Announcements

(Continued from page 212)

Applications for the 1962 postgraduate courses are being accepted in the order received and should be submitted as early as possible.

Additional information may be obtained by writing to Mr. Murray Kornfeld, Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

The American College of Chest Physicians has established a fund providing for loans to resident physicians to stimulate interest in postgraduate study of chest diseases and to assist postgraduate students in continuation of studies in diseases of the chest (including diseases of the heart and lungs).

Distribution of the funds is under the jurisdiction of the Committee on Resident Loan Fund of the College.

Any physician who has completed an internship of one year or more in an acceptable hospital may apply for a loan to continue in the specialty of chest diseases. Loans are made only to physicians serving residences in chest medicine and cannot be made to physicians engaged in practice.

Application forms may be secured by writing to the Committee on Resident Loan Fund, in care of the Executive Offices of the American College of Chest Physicians, 112 E. Chestnut Street, Chicago 11, Illinois.

David State, M.D., Professor and Chairman of the Department of Surgery, Albert Einstein College of Medicine, New York, will deliver the Twelfth Annual Memorial Lecture at Menorah Medical Center of Kansas City, Missouri, on Thursday, May 17, 1962 at 8 p.m.

The subject will be, "Physiologic and Clinical Studies in Auto-regulation of Gastric Secretion."

Kansas Press Looks at Medicine

(Continued from page 211)

considerable political force. The American Medical Association, on the other hand, maintains that all of these neither need nor want such a bill.—*Kansas City Kansan*, Mar. 14, 1962.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Bill L. Braden, M.D.
Box 147
Wamego, Kansas

E. Dean Bray, M.D.
Minneapolis Clinic
Minneapolis, Kansas

George DeTar, M.D.
219 W. Madison
Iola, Kansas

Frank D. Eichhorn, M.D.
Kansas Plaza
Garden City, Kansas

D. D. Goering, M.D.
Tribune Clinic
Tribune, Kansas

Lawrence L. Kennedy, M.D.
1528 W. 23rd Street Park
Topeka, Kansas

C. F. Orthwein, Jr., M.D.
Hutchinson Clinic
Hutchinson, Kansas

E. D. Peffly, M.D.
Chetopa
Kansas

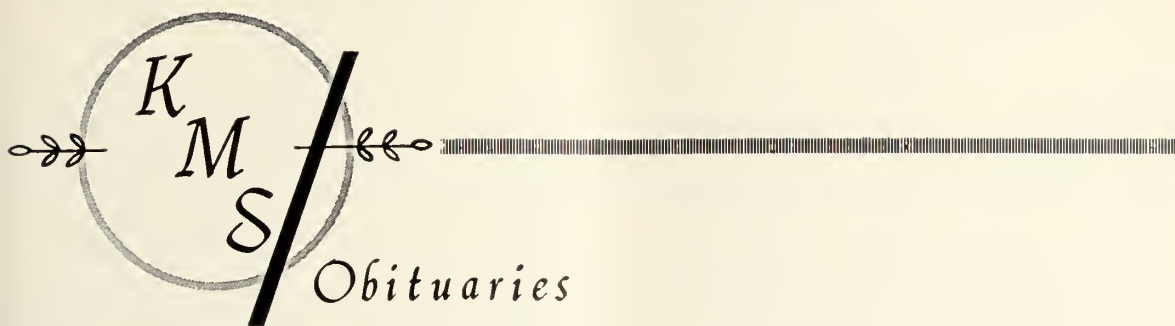
G. Rex Stone, M.D.
St. Francis Hospital
Wichita, Kansas

Elmer W. Taylor, M.D.
107 S. Chautauqua
Sedan, Kansas

John A. Tribbey, M.D.
Children's Receiving Home
Atchison, Kansas

Thomas A. Turner, M.D.
Hertzer Clinic
Halstead, Kansas

K. E. Wedel, M.D.
403 E. Sixth
Minneapolis, Kansas



WILLIAM G. NORMAN, M.D.

Dr. William G. Norman, 89, general practitioner in Cherryvale, died April 13. He had been a practicing physician for 63 years.

He was born in Iowa in 1872. He graduated from Kansas City Medical College in 1898 and practiced medicine in Iowa before coming to Cherryvale 55 years ago.

Dr. Norman was preceded in death by his wife and stepson.

R. HERBERT ROLLOW, M.D.

Dr. R. Herbert Rollow, 63, Chanute, died in the Neosho Memorial Hospital on March 10.

He was born December 28, 1898, at Osborne, Kansas. He graduated from the University of Kansas School of Medicine in 1925. Dr. Rollow began his medical practice in Thayer and moved to Chanute in 1937.

Dr. Rollow is survived by his wife Edna, two sons and a daughter.

The Kansas Medical Society—1961-1962

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President-Elect.....	Norton L. Francis, Wichita
Immediate Past President....	Glenn R. Peters, Kansas City
First Vice-President.....	Il. St. Clair O'Donnell, Ellsworth
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A.M.A. Alternate, 1960-1962..	H. St. Clair O'Donnell, Ellsworth
A.M.A. Delegate, 1961-1963..	Lucien R. Pyle, Topeka
A.M.A. Alternate, 1961-1963..	Glenn R. Peters, Kansas City
Chairman of Editorial Board..	Orville R. Clark, Topeka

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Cherokee.....	R. H. Claiborne, III, Baxter Springs	H. L. Bogan, Baxter Springs
Clay.....	G. B. McIlvain, Clay Center	Bruce McVay, Clay Center
Cloud.....	F. P. Thornton, Jr., Concordia	Paul L. Nelson, Concordia
Cowley.....	Harwin J. Brown, Winfield	Charles D. Litton, Winfield
Crawford.....	Carl S. Newman, Pittsburg	Earl E. Miller, Pittsburg
Dickinson.....	D. C. Chaffee, Abilene	D. C. Rorabaugh, Abilene
Doniphan.....	Emerson D. Yoder, Denton	Robert L. Corder, Highland
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Edwards.....	M. Dale Atwood, Kinsley	F. G. Meckfessel, Lewis
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Flint Hills.....	Richard F. Conard, Emporia	Donald Coldsmith, Emporia
Ford.....	Evan R. Williams, Dodge City	Robert G. Klein, Dodge City
Franklin.....	David G. Laury, Ottawa	Chester H. Strehlow, Ottawa
Geary.....	Herbert L. Bunker, Junction City	Alex Scott, Junction City
Greenwood.....	John H. Basham, Eureka	J. Gordon Claypool, Howard
Harvey.....	Lee S. Fent, Newton	Charles A. Isaac, Newton
Iroquois.....	J. Roderick Bradley, Greensburg	R. H. Hill, Meade
Jackson.....	E. C. Moser, Holton	M. Ross Moser, Holton
Jefferson.....	W. A. R. Madison, Nortonville	
Jewell.....	C. S. Hershner, Esbon	
Johnson.....	Dan L. Berger, Shawnee Mission	Claire L. Tambllyn, Shawnee Mission
Labette.....	C. F. Henderson, Parsons	E. C. Beaty, Parsons
Leavenworth.....	J. Malcolm Graham, Leavenworth	Kenneth A. Powell, Leavenworth
McPherson.....	Varden Loganbill, Moundridge	Arthur H. Dyck, McPherson
Marion.....	R. R. Melton, Marion	T. C. Ensey, Marion
Marshall.....	R. M. Thomas, Marysville	H. H. Haerle, Marysville
Miami.....	W. O. Appenfeller, Osawatimie	J. G. Rowlett, Paola
Mitchell.....	R. P. Weltmer, Beloit	C. A. Nystrom, Cawker City
Montgomery.....	C. R. Dickinson, Coffeyville	John F. Coyle, Coffeyville
Nemaha.....	C. C. Hunnicutt, Sabetha	T. A. Montgomery, Sabetha
Neosho.....	James D. Gough, Chanute	Henry K. Baker, Chanute
Northwest Kansas.....	S. Paul Hornung, Colby	Asher W. Dahl, Colby
Osborne.....	J. F. Cornely, Osborne	J. E. Henshall, Osborne
Pawnee.....	William R. Brenner, Larned	S. T. Coughlin, Larned
Pottawatomie.....	Eugene A. Walsh, Onaga	Fred E. Brown, St. Marys
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Republic.....	P. U. Hunsley, Belleville	E. J. Chaney, Belleville
Rice.....	James T. Grimes, Lyons	P. E. Beauchamp, Sterling
Riley.....	T. H. White, Manhattan	R. D. Olney, Manhattan
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Sedgewick.....	George F. Gsell, Wichita	Jack G. Phipps, Wichita
Seward.....	Otto F. Prochazka, Liberal	Jess W. Koons, Liberal
Shawnee.....	John E. Cray, Topeka	C. M. Lessenden, Topeka
Smith.....	D. A. Hardman, Smith Center	V. E. Watts, Smith Center
South Central Tri-County.....	M. D. Christensen, Kiowa	Ward M. Cole, Wellington
Stafford.....	O. W. Longwood, Stafford	C. Everett Brown, Stafford
Washington.....	D. A. Bitzer, Washington	L. L. Huntley, Washington
Wilson.....	Frank A. Moorhead, Neodesha	C. E. Stevenson, Neodesha
Woodson.....	A. C. Dingsus, Yates Center	H. A. West, Yates Center
Wyandotte.....	C. L. Francisco, Kansas City	C. L. Young, Kansas City



Bats and Rabies

The Handling of Bats and the People They Bite

TE YONG LOU, M.D., and
HERBERT A. WENNER, M.D., *Kansas City**

HUMAN BEINGS WHO are bitten by bats are at risk of rabies. Bat rabies are managed in the same way as bites of other rabid animals. But, in contrast, the permissible delay often allowed following simple dog bites^{1, 2} does not apply to bat bites; bites from bats must be presumed to represent an exposure with an undue risk of infection with rabies virus. Because often the urgency for treating patients bitten by bats is not appreciated, we are reporting observations relating to a child following such exposure to rabies virus. In addition to these studies we have included discussion of some current concepts in the management of persons at risk of contracting rabies.

Résumé of Knowledge Concerning Rabies In Bats

Beginning with the epizootic of Biguayú, in South Brazil, between 1906-08,³ outbreaks of rabies transmitted by vampire bats have occurred in Paraguay, Argentina, British Guiana, Venezuela, Honduras, Trinidad, and Mexico.⁴ During these outbreaks over 100 human beings and thousands of domestic animals died from rabies. For about 50 years the disease was apparently confined to countries of South and Central America. Reports from different regions of the United States of four human beings having been bitten by

An apparently healthy insectivorous bat, infected with rabies virus, bit a 5-year-old boy. On the 210th day following vaccine therapy antibodies neutralizing rabies virus were still present in the boy's serum. Despite a low antibody index this boy did not develop rabies and has remained healthy for a period of 15 months. The purpose of this report is to reaffirm the importance of bats as sources of rabies virus, and define the physician's responsibility to people bitten by bats.

common insectivorous bats infected with rabies were published in 1954.^{5, 6, 7, 8} Rabies has now been found in bats in 31 states (including Kansas); up to the present time there are in the United States five known cases of human rabies attributed either to bat bites^{5, 9, 10} or bat handling.^{11, 12} In addition to these, rabies transmitted by bats has also been observed in human beings resident in India and Germany.⁴

Clinical Epilogue

During the early afternoon of September 23, 1960, a 5-year-old boy (Hosp. No. 60-11705), while playing in front of his house in Shawnee-Mission, Kansas (suburban Kansas City) hit a tree with a ball and

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dislodged an apparently healthy brown insectivorous bat. The bat fell to the street and bit the right ankle of the child after it was kicked at by him. The bat was captured and kept under observation by a local veterinarian. On the fourth day one of us was consulted and immediately a series of 14 daily injections of Semple-type antirabies vaccine was started. Following this series of inoculations the child also received two boosters of duck-embryo vaccine; these were given on the 28th and 38th days following the bite. The treatment was accompanied by only a transient mild local reaction at the sites of injection. The wound on the right ankle healed promptly. On the 21st and 210th days after the first injection a serum sample was taken for neutralizing antibody studies. At the time vaccination was started the bat, still apparently healthy, was sacrificed and tissues were obtained for virus studies.

Materials and Methods

Virus studies: The bat was sacrificed and autopsied immediately. Imprints of midbrain and brain stem made on glass slides were stained using Seller's method. Portions of brain tissue and salivary glands were each ground separately in a mortar with pestle using alundum as abrasive. Each tissue was diluted with saline (10 per cent) containing 500 units of penicillin and 2 mg. of streptomycin per ml. The extracts were centrifuged (1,000 rpm/15 minutes); each supernatant fluid obtained from brain or salivary gland extracts was inoculated into 8 albino Swiss mice, three to five weeks of age; each mouse received 0.03 ml. intracerebrally. *Affected mice:* The brains obtained from paralyzed mice and from mice which died shortly before inspection were used to obtain imprint smears, paraffin sections and antigen for neutralization tests.

Identification of the virus: Brains obtained from three paralyzed mice inoculated with bat brain tissue were triturated to make a 20 per cent suspension of viral antigen (diluent, 10 per cent normal rabbit serum in 0.85 per cent saline containing penicillin and streptomycin). The viral antigen was diluted serially in 10-fold (10^{-1} to 10^{-5}) steps using the same diluent. To each virus dilution was added an equal amount (0.2 ml.) of a 1/100 dilution of a hyperimmune antirabies horse serum (kindly supplied by Dr. Karl Habel, National Institutes of Health, Bethesda, Maryland). For control, the serially diluted viral antigen was mixed with normal human serum. Both sera, diluted 1:5 were inactivated at 56° C. for 30 minutes. Virus-serum mixtures were incubated at 37° C. for 90 minutes prior to inoculation intracerebrally into albino Swiss mice three to five weeks of age, using six mice per dilution and 0.03 ml. of virus-serum per mouse. Mice were observed daily for 28 days.

Antibody measurements: Sera used in these tests

were obtained from (a) the patient on the 21st day and 210th days after exposure, (b) a healthy adult and (c) a horse hyperimmunized with rabies virus. Using these sera, four sets of virus-serum mixtures were prepared using procedures identical with those described for identification of virus. The antigens consisted of (a) rabies virus isolated from the bat and (b) mouse-adapted fixed rabies virus (Strain CVS; passed 10 times in guinea pigs and 11 times in mice; Lederle strain) obtained from Dr. E. H. Lennette, California Department of Public Health, Berkeley. Viral antigens were diluted serially in consecutive 10-fold steps. An equal amount of inactivated serum, diluted 1:5 was added prior to incubation of the mixture.

Results

Bat brain: Numerous oval intracytoplasmic inclusions, tinctorially identical with Negri bodies were observed in neurones. All eight mice inoculated with supernatant fluids derived from bat brain became ill between the 13th and 15th days. The fur became rough, the back curved, and the hind legs paralyzed. Death occurred quickly after onset of illness.

Bat salivary gland: These tissues were not examined for inclusion bodies. The eight mice inoculated with extracts of salivary gland became ill and died between the 12th and 15th days; flaccid paralysis and prostration were observed in three mice before death.

Mouse brain: Eight paralyzed mice inoculated with bat brain (five mice) or salivary gland (three mice) were sacrificed. In brains obtained from these mice neurones contained intracytoplasmic inclusions (Negri bodies) similar to those noted above. Three brains were studied histologically; these paralyzed mice had been inoculated with either bat brain or bat salivary gland. Paraffin sections of the central nervous system from three of these animals also revealed diffuse congestion and petechiae. Interstitial and perivascular cellular infiltration, predominantly mononuclear was noted in the cerebellum, medulla, and to a lesser extent in the cerebral cortex. Injury to neurones was plainly evident; neuronophagia, satellosis, karyolysis and dissolution of Nissl's bodies were all observed. Eosinophilic inclusion bodies were present also within the cytoplasm.

Neutralization tests: In order to (a) confirm serologically that the virus recovered from the bat was antigenically like rabies virus, and (b) determine the neutralizing antibody response of the patient following vaccination the tests recorded in Table 1 were performed.

The results of the tests provided (a) serological evidence that the agent recovered from the bat's brain was rabies virus, and (b) that antibodies neutralizing rabies virus were present in the patient's sera by the 21st post-vaccinal day and persisted without signifi-

cant change for seven months. The slight drop in neutralization index is probably real, and reflects a small decay in the antibody level. The prolonged survival time for mice inoculated with immune horse versus normal serum-virus mixture is statistically significant ($t = 4.24$, a value significant beyond 0.5 per cent level); the slightly prolonged differences observed between mice inoculated with patient's post-vaccinal sera in relation to normal serum-virus mixture are not significantly different ($t = 0.68$, a value close to the 50 per cent level; statistical analyses were made from results recorded for Experiment No. 1, Table 1).

Discussion

Between 1906 and 1908 during an epizootic in Biguayú, South Brazil thousands of cattle and horses, and comparatively fewer dogs succumbed to rabies. Vampire bats were seen attacking and biting animals; subsequently these animals developed a paralytic type of rabies. Carini suspected that the disease was transmitted by bats. This suspicion was later verified by detection of rabies virus in the brain of a fruit-eating bat which had bitten cattle.¹⁵ Epizootics in South Brazil were found also to be related to rabies infection in vampire bats. Lima isolated rabies virus from

bats; he obtained evidence that apparently healthy bats may harbor rabies virus in the brain and salivary glands for several months. These symptomless carriers were able to transmit rabies on biting susceptible hosts. Since the first outbreak in Brazil the disease has spread widely into many countries of South and Central America.⁴ During these outbreaks more than 100 human beings died of rabies.

In 1954, Sulkin and Greve,⁵ Venters,⁶ Witte⁷ and Grimes⁸ reported the occurrence of rabies in human beings following bites from rabid bats. These reports stimulated many investigators to search for rabies in common insectivorous bats. Rabies virus has now been isolated from at least 466 bats captured in 31 states; over 176 bats infected with rabies virus have been associated with a biting episode involving human beings.¹⁷ During the past seven years, five fatal cases of human rabies transmitted either by bites from^{5, 9, 10} or handling of^{11, 12} bats have been recognized in the United States.

This historical résumé serves to accentuate the importance of bats as reservoirs of rabies virus; moreover it is given in order to reemphasize the medical responsibilities requisite to management of bat bites. Parents of children bitten by wild animals, perhaps more often than adults similarly exposed, are aware

TABLE I
NEUTRALIZATION INDICES OBTAINED FOR (A) NORMAL HUMAN, (B) PATIENT'S POST-VACCINAL AND (C) IMMUNE HORSE SERA WITH TWO STRAINS OF RABIES VIRUS

Exp. No.	Serum 1:5	Dilution of Virus						Average Incubation Period (Days)	LD ₅₀ Per 0.03 ml	Neutralization Indices
		10 ⁻¹	10 ⁻²	10 ⁻³	10 ⁻⁴	10 ⁻⁵	10 ⁻⁶			
1* Oct. '61	Normal Human	6/6	5/6	4/6	2/6	0/6	—	13.0	10 ^{3.36}	—
	Pt's—21st day	6/6	4/6	1/6	0/6	0/6	—	13.3	10 ^{2.34}	10
	Immune Horse	4/6	3/6	0/6	0/6	0/6	—	15.7	10 ^{1.67}	50
2** July '61	Normal Human	6/6	6/6	6/6	4/6	2/5	—	5.04	10 ^{4.53}	—
	Pt's—21st day	4/4	6/6	3/6	1/6	0/6	—	5.50	10 ^{3.13}	25
	Pt's—210th day	6/6	6/6	5/6	1/5	0/6	—	5.44	10 ^{3.51}	10
	Immune Horse	—	—	—	—	—	—	—	—	—
3**	Normal Human	—	5/5	6/6	4/6	1/6	1/6	5.23	10 ^{4.47}	—
	Pt's—21st day	—	6/6	4/6	0/6	0/6	0/6	6.70	10 ^{3.24}	17
	Pt's—210th day	—	6/6	3/6	1/6	1/6	0/6	7.66	10 ^{3.29}	15
	Immune Horse	—	6/6	2/6	0/6	0/6	0/6	6.12	10 ^{2.75}	51
2 + 3 Cumulative	Normal Human	6/6	11/11	12/12	8/12	3/11	1/6	—	10 ^{4.5}	—
	Pt's—21st day	4/4	12/12	7/12	1/12	0/12	0/5	—	10 ^{3.2}	20
	Pt's—210th day	6/6	12/12	8/12	2/11	1/12	0/6	—	10 ^{3.42}	12
	Immune Horse	—	6/6	2/6	0/6	0/6	0/6	—	10 ^{2.75}	55

* Antigen in test was virus passed from the bat's brain.

** Stock rabies virus from Dr. E. H. Lennette.

6/6, Ratio of deaths or survivors.

LD₅₀ endpoints were calculated by the method of Reed and Muench.¹⁴

Neutralization index of 10, test No. 1: $\log_{10} 3.36 - 2.34 = 1.02$, for which antilogarithmic value is 10.

that such injuries constitute a health hazard. Physicians consulted on this account should be familiar with accepted methods of management. Therefore, current methods of management are briefly outlined below; they are also subject to further discussion.

Management of Bites by Bats

Concerning the bat: The only difference in management of bats which bite and biting dogs is the necessity of recalling that such bats are likely to be rabid; therefore human beings bitten by bats should be considered exposed to rabies and *treated at once*.¹ Dogs, when identified after biting a person, can be quarantined for seven to 10 days; if the animal remains healthy, the risk to the person bitten of developing rabies is quite remote, even if the animal became rabid within a week following quarantine. For bats, no such assurance can be given for they may be infected and contain virus in salivary glands either without any, or with but very few signs of rabies. Biting bats, therefore, should be captured (when possible) and submitted immediately for studies to determine infection with rabies virus. The absence of Negri bodies is not a reliable index, for it is known that Negri bodies may not be seen in as many as 50 per cent¹² of infected bats. Therefore, exclusion of rabies is dependent on other tests, principally mouse inoculation, which requires as long as three weeks for onset of clinical signs of infection. However, a fraction of the mice inoculated can be sacrificed six or seven days after intracerebral inoculation and their neural tissues examined for Negri bodies; these may be found by impression smears properly stained, or by the fluorescent antibody method. The latter technique has been applied usefully by Goldwasser and Kissling for rapid diagnosis of rabies in Negri negative animals and for detection of virus in salivary glands.

Concerning the patient: Treatment should be started as early as possible after exposure. *The wound:* Free bleeding should be encouraged, followed immediately by thorough washing with soap and water. For puncture wounds application of concentrated nitric acid, or zephiran chloride (1 per cent solution) has been recommended. *Hyperimmune rabies antiserum:* As much as practical (≥ 2.0 ml.) of the serum dose (40 international units [0.5 ml.]* per kg. of body-weight) should be infiltrated into tissues around and beneath the wound, the remainder should be inoculated intramuscularly.¹

Vaccination: In all instances vaccine treatment should be started immediately (see below for discussion of vaccine preparations). *Prophylaxis:* Local infections by other microbial agents deserve consideration; in particular immunity to tetanus should be

activated or reinforced; antibacterial agents should be used to combat infection only.

Inquiries into methods of management: For the wound: Both nitric acid and zephiran chloride effectively prevent development of rabies in guinea pigs. Their effectiveness however diminishes if applied several hours after infliction of the wound.^{2, 24} Since many persons at risk of rabies following animal bites present themselves for treatment hours after exposure, the application of nitric acid in particular seems to us to be less urgent for these than for those appearing earlier following severe exposure. On theoretical grounds it appears likely that within several hours rabies virus may have extended beyond the tissue sites "cauterized" by the nitric acid.

Infiltration of rabies antiserum into tissues surrounding the wound if given within several hours after exposure prevents rabies in experimental animals. However, even during this short interval rabies virus may not remain localized, but may extend into distant interstitial compartments. Thus, local infiltration with antiserum by itself is insufficient for prevention of rabies; the larger amount inoculated intramuscularly and which soon enters the vascular compartment and possibly interstitial tissue compartments constitutes a very important part of treatment.

Passive immunization: Usually 15 to 21 days are required to achieve partial immunity with vaccine; at least 30 days are required for development of maximal immunity.¹⁹ Passive immunization is therefore useful in forestalling effective localization of rabies virus in the central nervous system before active immunity is obtained from the vaccine therapy. In severe bites hyperimmune antiserum administered parenterally followed by vaccinothrapy, provides the best protection. In bites of lesser severity vaccine alone is usually sufficient. After severe exposure hyperimmune serum is given as soon as possible, preferably within 24 hours, but may be given after the recommended period of 72 hours in order to delay the incubation period.^{20, 21} A second injection given at a still later interval might, however, interfere with the antigenicity of the vaccine.¹

Active immunization: Inactivated rabbit-brain rabies virus has been the kind of vaccine most widely used. Avian-embryo vaccines prepared from rabies virus propagated in chick- or duck-embryo are available. The chick-embryo (HEP Flury) live-virus vaccine is not licensed for use in human beings; it has been used experimentally for immunization of human beings without any severe systemic reactions.^{2, 20} Duck-embryo vaccine, inactivated by beta-propiolactone is available for use in human beings.

For primary immunization, the dose of rabbit-brain vaccine (phenolized) is 2.0 ml. of 5 per cent, or 0.5 ml. of 20 per cent emulsion injected subcutaneously

* Lederle and Company, anti-rabies hyperimmune horse serum.

daily for 14 days. For severe bites on the head and neck seven additional injections are given. For children under three years of age half the recommended dose is used. Evidence obtained in human volunteers²² indicated that four injections given at five day intervals induced antibodies just as promptly and just as high in titer as the standard schedule. Habel¹ advocated the use of two boosters of duck-embryo vaccine after the last daily injection of vaccine. The recommended dose of duck-embryo vaccine is 1.0 ml. injected subcutaneously daily for 14 days.

For reinforcement of post-vaccinal immunity two doses of avian-embryo vaccine given a week apart very likely will provide protection against the risk of rabies. Fox² observed that antibodies often persist for five years or longer after a full primary course of Pasteur treatment. The antibody recall following the booster dose is rapid; the levels of antibody exceed those developing after primary immunization. Fox suggested that a single booster of avian-embryo vaccine is probably adequate for new exposures in previously treated persons. Habel,²³ on the other hand, followed the recommendations of the World Health Organization Expert Committee on rabies that the full Pasteur treatment should be given if the interval between vaccination and re-exposure is over six months.

Serious allergic reactions similar to those obtained after sensitization of human beings with rabbit-brain antigen have not been reported with the use of avian-embryo vaccines. Unfortunately, this advantage is tempered by the lack of factual information on protection rates obtained with duck-embryo vaccine. Curiously, more published data on antigenicity in human beings are available for HEP Flury vaccine. In a recent comparative study on these two avian vaccines no significant differences were found in serologic response.²⁴

The available published data which we have examined do not provide unequivocal evidence that either the duck-embryo or the unlicensed HEP Flury vaccine is superior to the rabbit brain vaccine in prevention of rabies. Greenberg and Childress' data indicated that during the first 10 days after vaccination antibodies appeared earlier with duck-embryo than with rabbit-brain vaccine. But the overall responses to rabbit-brain vaccine soon thereafter exceeded those for duck vaccine, and the antibody titers obtained with the former were higher than with the latter.

In conclusion, it should be reemphasized that the management of bat bites is identical with management following unprovoked bites by other wild animals, or rabid dogs. But, as has been pointed out, *every bat bite must be considered an exposure to rabies*. Prevention of rabies depends on (a) either destruction of virus at the site of entry in order to prevent infec-

tion, or to reduce the size of the infecting dose so that the incubation period is extended, and (b) the development of humoral antibody during the incubation period to overcome the infection before the virus invades and destroys susceptible vital centers of the nervous system. Unfortunately the exact effective antibody level is not known;²⁶ Johnson²⁰ believes an antibody level of 1:50 protecting against 32 infective doses of rabies virus would prevent infection.

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(Continued on page 224)

Adolescents and Adolescence

Problems of the Teenager

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IT HAS BEEN SAID that in a school system, the teachers are afraid of the principal; the principal is afraid of the superintendent; the superintendent is afraid of the school board; the school board is afraid of the parents; and the teenagers aren't afraid of anybody. The individual who made that remark may have known about the school officials, but his knowledge of teenagers was superficial indeed.

I would like to quote for you from Anna Freud's description of the teenager. "Adolescents are full of incomprehensible and irreconcilable contradictions. They are excessively egotistic, regarding themselves as the center of the universe and the sole object of interest, and yet at no time in later life are they capable of so much self sacrifice and devotion. They form the most passionate love relations, only to break them off as abruptly as they began them. On the one hand they throw themselves enthusiastically into the life of the community, and on the other, they have an overpowering longing for solitude. They oscillate between blind submission to some self-chosen leader and defiant rebellion against any and every authority. They are selfish and materially minded and at the same time full of lofty idealism. They are ascetic but will suddenly plunge into instinctual indulgence of the most primitive character. At times, their behavior to other people is rough and inconsiderate, yet they themselves are extremely touchy. Their moods veer between lighthearted optimism and at other times they are sluggish and apathetic."

Anna's description is a concise statement of the completely confused situation in which the teenager finds himself. It is our job as parents and teachers to help him straighten himself out.

I like to think of this problem as a tree with four trunks, each with many branches. We cannot hope to trace out all the branches because the tree never ceases to grow. The four trunks of the tree that will form the basis for our discussion are Maturation (growing up), Emancipation (separation from parental authority), Vocation (choosing a way to make a living) and Sex.

The physical aspects of growing up, even the development of the secondary sex characteristics are so familiar to all that they would seem to need no comment, but this is not so. The adolescent finds himself changing. The boy's shoulders become noticeably broader and chest more full. The girl's breasts begin

to develop and the hips broaden. Both begin to develop pubic and axillary hair. They both instinctively know that this is all part of the growing up process, but they don't quite understand and are inclined to be a bit ashamed and withdrawn.

It is then that we as parents should sit down with the child and explain with drawings, or pictures, or both, what this is all about. Teachers can often do a better job than parents with a select group. I recall quite vividly a session of Boy's Hi-Y when I was a high school freshman in which we had a frank discussion on this interesting phenomenon.

A consideration of the trials and tribulations which befall most teenagers, with suggestions of what to expect and what to do.

Adolescents are also growing up mentally and intellectually. They are beginning to put together their sum-total of experiences and project them into the future. They are at an age when their capacity for learning is great. We should take advantage of it.

Prior to adolescence a child plays indifferently with members of his own, or the opposite sex, but with the coming of adolescence he becomes a social animal. Boys begin to take notice of girls and they in turn give shy smiles of encouragement. Here again, we as parents and teachers should take the cue and teach them the proper approach and ways of engaging in polite chit-chat that lead to better acquaintance.

Emotional maturity is probably the greatest hurdle of all and very few people can be said to be completely and emotionally mature. I would like to give you a few criteria in the form of questions.

1. Does Junior accept the responsibility for doing a job thoroughly, completely and to the best of his ability when asked?

2. If he has an accident with the car does he tell you honestly and unreservedly what happened?

3. Does he think for himself, or does he just go along with the crowd?

4. If someone pokes fun at him, can he take it and come back with a snappy retort, or does he get angry?

5. Can he stand it to lose, or is it always someone else's fault?

6. Can he follow instructions, or does he always know a better and easier way?

7. Can he accept and profit by good criticism?

8. Does he have steadfastness of purpose, or do his goals change from day to day?

9. Is he loyal to those to whom he should be loyal, or does he change with the wind?

10. Does he have the initiative to plan his own work, or does he always have to be told what to do?

The second trunk of our tree is Emancipation, the separation of the child from the parents. This word comes to us directly from the old Roman law and means the freeing of the child from the paternal authority. It is desirable that the child should always identify with the parents, that he should say "That's my mom and dad," and let the world know that he's proud to be thus identified, but it should be as a free individual and not as a subject. Emancipation should not begin and end on the day the child attains his majority but should be a gradual process beginning in very early infancy and continuing, correlated with the maturation of the child, until the parents and child look upon each other as adults with mutual aims and interest.

During infancy the child has a great need for the security of the parental care, but as he begins to toddle and finds that he can do things for himself this need lessens and continues to lessen so that by the time he reaches adolescence he finds himself struggling with a still definite need for parental authority and the instinctive desire to fend for himself. The wise parent has gradually increased the liberty and responsibility of the child so that at this point he is ready to fend for himself and will come to the parent for advice and counsel.

If any trunk of our tree is more important than another it is my opinion that emancipation is the one. Emancipation is more than one day saying, "This is it, Son, you're on your own now." It is teaching the child to stand properly and confidently on his own two feet. It involves not only teaching him a way to make a living but also a way of life of his own choosing. This subject is much too involved for anything like a complete discussion here and now, but I would like to state that all too often we do things for our children when they would profit immeasurably in doing for themselves. Many of the mental and emotional conflicts of adolescence come from the improper handling of this process.

We find the adolescent to be lacking most in judgment. Good judgment can only come through wisdom obtained by enlightened experience. It is our duty as parents to see that our child is coached through "enlightening experiences" rather than al-

lowed to blunder into them to sink or swim, come what may. Children are impressionable and these experiences can be as well illustrated objectively as subjectively, and as such are much less traumatic. By this I mean that we can accomplish as much by a voluntary visit to the traffic court as we can by actually becoming involved in the toils of the law.

We have been assuming all along that the parent has dominated the child and has been able to guide him to a point of smooth emancipation where they are both friendly adults, but what about the situation where the child dominates the parent? This situation should not exist, but does, and the child is often as reluctant to give up the security of his hold on the parent as an overdominant parent is to emancipate the child. Both situations are abnormal and usually require outside help for proper solution.

The third trunk of our tree is the choice of a Vocation. It is quite natural for there to be a rebellion against following the parental footsteps, especially if the parent has been unusually successful, for the fear of having the people say, "He's not the man his old man was!"

A wise parent allows the child to choose his own vocation, encouraging him along the lines that his talents and qualifications seem to direct with such help as may be obtained from the High School Guidance Department. The child should not be crowded to make a decision but allowed to mature and complete his general education before making a choice.

The needs and prospects of every individual will differ but every normal boy expects to be a family man and the breadwinner, and should be counselled accordingly. Nearly every girl plans a temporary vocation of nursing, teaching, secretarial work, etc., with the ultimate goal of marriage and motherhood. It is my opinion that she should be encouraged to do just that.

The fourth trunk of our tree is equal in magnitude to the others, but no greater. There has been a sort of taboo and hush-hush on the mention of sex, or sex education, through the ages from the time of our Puritan Fathers up to the present time. But it is of no use to turn away the head at the mention of sex; it won't go away. Sex education should begin at an early age but should be carried only so far as the child is able to comprehend it. The mystery of procreation and miracle of birth should not be given detailed treatment until the child reaches adolescence, then the parent should give the child a frank explanation appropriate for his or her sex.

Parents always worry about children dating, especially the girls. Adolescents are more apt to be overinhibited than promiscuous. So long as adolescents are dating adolescents you have very little cause

for worry, but should either a boy or girl begin dating an adult there might be just cause for alarm.

Parents do more harm by unreasonable restrictions and "nosiness" than by laxity. I would like to paraphrase the well known saying from Proverbs—"If you have brought the child up in the way that she should go, when she is become an adolescent, she will not depart from it!" Parents have a just right to know where the child is going, with whom she is going, and when they may expect her home. A great many accidents happen these days. The parents should explain to the child that they are properly concerned for her welfare and want to know where to start looking in case something happens and are not just "nosing" into her affairs.

I would like to make a few general remarks about adolescents. They are growing rapidly and have enormous appetites. They need the food and are making good use of it to build bone and muscle. Don't begrudge it to them and don't make them feel self-conscious by such remarks as "we have three fledglings and a vulture to feed."

They have not yet reached the age of complete responsibility so work with them whenever possible rather than assigning them a task to do alone. It also improves the relationship between the parent and the child. However, they should have certain responsibilities in the way of regular daily chores to do, and should be held accountable for the proper performance of these tasks whether supervised, or not. This procedure should begin at a very early age.

They are negativistic and have a great mistrust of adults, even their own parents. Always shoot square with them and explain carefully the reason for any deviation from the usual.

They are neither children nor adults, hence are misfits everywhere except with other teenagers. Is it any wonder that they band together and tend to withdraw into a world of their own? Don't let it get you down that you don't enjoy their confidences any more; only other teenagers are to be trusted. Be patient and forgiving; the storm will pass. They will grow up.

Our discussion would not be complete without a perusal of the whys and wherefores of the teenage gangs. If you will combine an excessive egoism, a strong urge to be noticed, a rebellion against authority, a mistrust of adults, a badly handled emancipation, emotional immaturity, and, usually, below normal intelligence, you have the base for the gang. Blind submission to a self-chosen leader plus the inability to think for themselves are usual adjuvants. The leader finds security in the number of his followers who flatter his ego by their blind obedience. The followers find security in the leader who tells them what to do. Actually they are all very fearful of the adult world and seek security in the gang. You

will not find well-adjusted adolescents with a high level of intelligence to be members of a gang. If our child becomes the member of a disreputable gang, we have failed him somewhere along the line.

I can think of no more appropriate way to terminate this discussion than a quotation of what I consider the most significant "eleven" from Dr. Edward A. Strecker's Bill of Rights for children.

1. "We will recognize your worth as a person and we will help you to strengthen your sense of belonging.

2. "We will respect your right to be yourself and at the same time help you to understand the rights of others, so that you may experience cooperative living.

3. "We will help you develop initiative and imagination, so that you may have the opportunity freely to create.

4. "We will encourage your curiosity and your pride in workmanship so that you may have the satisfaction that comes from achievement.

5. "We will provide the conditions for wholesome play that will add to your learning, to your social experience, and to your happiness.

6. "We will illustrate by precept and example the value of integrity and the importance of moral courage.

7. "We will encourage you always to seek the truth.

8. "We will open the way for you to enjoy the arts and to use them for deepening your understanding of life.

9. "We will work to rid ourselves of prejudice and discrimination, so that together we may achieve a truly democratic society.

10. "We will provide you with rewarding educational opportunities so that you may develop your talents and contribute to a better world.

11. "We will protect you against exploitation and undue hazards and help you grow in health and strength."

We must remember that the man we mould today, moulds the man of tomorrow and that the future of mankind is influenced by the product we turn out. Let us try to turn out a lifter, not a leaner!

Bats and Rabies

(Continued from page 221)

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Functional Medicine

A Case of Ill-Defined Functional Illness in General Medicine

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THE GENERAL PRACTITIONER frequently encounters a patient who has innumerable physical symptoms without apparent physical or psychological bases. Such a patient is often anxious, and when the physician responds to his complaints with hesitation, anxiety, or impatience, the complaints worsen. Vigorous medical attention and treatment may result in an accentuation of his distress and perpetuate his somatic illness. The alleviation of one symptom may give way to a new one. The patient, though anxious, usually denies having emotional problems. Only by approaching him tactfully with a strong suspicion of underlying psychological problems may one begin to identify basic causative factors. The understanding of possible sources or conflicts which provoke symptomatic discomforts in the patient can often be of great value in the success of future treatment.

The following case illustrates such a problem. The husband of the patient and her home environment were found to be the chief sources of her anxiety and her innumerable symptoms disappeared when she was hospitalized. Recovery was achieved after a brief period of hospitalization with provision for acceptable outlets for her aggression; and intensive casework with the husband.

The patient was white, middle-aged, Catholic, the oldest of six children in a middle-class family. Her childhood was spent in a tense, unharmonious atmosphere. Her mother, a cold, punitive, dominating woman, had meticulously high standards. She assigned the patient many tedious household tasks and supervised these strictly with exactitude, punishing her for the slightest neglect of duty. Her father was gentle, kind, and passive, and was dominated by her mother who was highly critical of him. The patient did well in school, was serious-minded, conscientious, and complied with her mother's wishes.

At 17, the patient eloped which was out of character for this young woman who had always obeyed her parents. The apparent factor in the elopement was the patient's need for affection and warmth which were not provided by her parents. She wanted a home of her own, and accepted the needed love and af-

fection from her suitor. The husband was most loving, understanding toward her and devoted himself to her until recent years.

The patient was a capable wife and an immaculate housekeeper. Before having her children, she worked as a secretary and received high commendation from her employers. After the birth of her children, she began to pattern her relationships more and more after those of her mother, and trained the children carefully. When her husband started a business, she

Some considerations on the management of psychosomatic manifestations of anxiety state.

became his assistant. As the business grew, she assumed management responsibilities, and played a vital role in its operation. The patient and her husband worked closely together until he suffered a heart attack which incapacitated him for nearly a year. During this time she carried on with the business, but did so with much anxiety over the possibility of losing him. Her brother-in-law became more involved in the business and after her husband recuperated, he decided to give the brother-in-law major responsibility for management of their firm. This forced the patient to be less involved in it and her responsibility was reduced.

The patient then developed numerous physical complaints. She consulted various physicians who failed to find any physiological basis for her complaints and many treated her symptoms without much success. These included chest pain, weakness, headache, dizzy spells, pain and muscle spasm of her legs, buttocks, back and neck. She complained of irregular bowel functioning, urinary difficulties, insomnia, hidden virus, anesthesia of her rectum, and tingling and numbness of her toes. She was given numerous medications including antibiotics, tranquilizers, sedatives and salicylates without lasting relief.

After consulting fifteen physicians successively, a psychiatrist, and undergoing a complete medical evaluation, the patient continued to suffer from her

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symptoms. Her illness had deprived her husband of her consideration and love. Her husband, in turn, reacted to her illness with negativism, rudeness, accusatory attitude and emotional coldness. He treated her as an invalid, did not permit her to work or to make decisions. Her husband's withdrawal of respect and affection for her greatly distressed the patient. Her hospitalization in a psychiatric institution was then recommended to her husband by the family doctor.

On arrival at the hospital, the patient told the physician that she had only physical problems and there could be nothing wrong with her psychologically. She expressed resentment and anger and accused her family of tricking her into the hospital. She said the physician and the psychiatric institution were after her money.

Physical examination, medical consultations and laboratory studies seemed to reassure the patient that she was properly taken care of and that the staff was competent. The psychological tests made her angry. She feared the doctors had underestimated her mentality. Positive physical findings included a mild hypertension with early vascular arteriosclerotic changes in the retinae. Laboratory studies and findings from x-rays of the chest and skull were all within normal limits.

During the initial period of the patient's hospitalization, she was suspicious and refused to follow the hospital routines and activities. She saw the artistic work of occupational therapy as a waste of time and spent most of the day lying in bed or writing derogatory letters about the hospital. The physician told her that indeed she did suffer intense distress and every effort was made, including various consultations, to come to an understanding of her ailments. She gradually expressed both her angry feeling toward her husband, and her fear of his death from a heart attack. She began to trust the physician, and was then willing to participate in adjunctive therapeutic activities. In them she came to realize how she could derive satisfaction from compulsive tasks and works of artistic creativity. She took pride in showing younger staff and patients her experience and knowledge in domestic activities in which she was proficient. She soon became one of the most active patients in the hospital and most of her symptoms subsided.

As she began to improve, she agreed with the physician that indeed her emotional needs had not been fulfilled. Further psychiatric interviews revealed her anxiety over the possibility of losing her husband, her strong wish to control him and her intense anger and resentment toward him. She felt that he lacked understanding of her and was angry toward her ailments. After a month in the hospital, she was free from all somatic symptoms and felt better than she

had in years. A brief visit with the husband was then arranged.

The psychiatric social worker saw the husband at the time of the patient's admission and before his visit with her. He was then seen for intensive casework interviews in preparation for the patient's discharge from the hospital. In them it became clear that his anxiety and over-involvement in his wife's illness had interfered with his understanding of her distress.

During her first visit, he accused her of not having real physical pain, and treated her as a malingerer. The patient quickly reverted to her former sick behavior and came back to the hospital in great distress, complaining of pains, aches, and other symptoms.

The husband was shaken by this visit. He had expected his wife would be changed and was discouraged because they had argued and antagonized each other during the visit. He was flooded with feelings of helplessness and talked of his own health, doubting that he would ever be able to understand the patient or her behavior.

Continued casework with the husband focused first on providing a calm and supportive climate for him with early reference to medical findings regarding his wife and definition of casework goals. Goals involved helping him (1) to reorient himself to her illness by understanding the actual existence of her discomfort, and the emotional stresses involved in it, (2) to develop awareness of his role in her illness, and (3) to modify his attitude and behavior.

Just prior to the patient's discharge from the hospital, the social worker saw the husband for a total of seven hours. Although not easily given to introspection, he responded positively to the caseworker's invitation to talk about his feelings in dealing with his wife's complaints. He recognized that he usually became angry and expressed his irritation and impatience with her by "telling her off." He constantly argued with her and accused her of being selfish. Then he considered how she might respond if he were less critical and more patient in his attitude. He was led to agree that he did not expect much of his wife and that she felt useless since he tended to do everything for her. He thought he might let her assume more household chores and wondered why he had needed to do them for her in the past. He could also see instances of how more effective and supportive attitudes on his part might bring favorable responses from her.

Before each of her last few visits home, the patient proudly told her doctor that she had to get home and take care of her husband who needed someone to look after him. The husband had recognized his role in his wife's illness, and was willing to modify his behavior so that their relationship would not be as stressful as it had been in the past.

Discussions and Conclusions

The treatment of this patient was based on a combined effort of a psychiatric team. The physician responsible for her physical health understood her distress and suspected what caused it. He began his investigation with physical, neurological and laboratory examinations. Even when the results were negative, he acknowledged and appreciated the existence of her distress. He prescribed medicine for acute symptoms and reassured her that he was interested in helping her. Firm limits were set for her in order to make it clear that if she were to receive any benefit from treatment in the hospital, she would have to comply with prescribed occupational and industrial activities even though they might appear pointless. The physician and the psychiatric nursing personnel communicated to her their concern about her discomfort and their desire to understand her problems.

The patient gradually attained relief from her anxiety states by talking to the physician more freely about her feelings about her husband and her fears about his death. She then took a positive attitude toward adjunctive therapeutic facilities. Her involvement with such activities helped her to organize her time and to occupy herself constructively as well as to provide her with an outlet for her aggression. She found satisfaction in creative arts and constructive work. This was accompanied by a diminishing of her somatic symptoms.

Her improvement helped her to realize the existence of her anger and resentment toward her husband, and she recognized how her emotional needs had not been met by him. After she allowed herself to discuss her angry feelings openly, her anxiety diminished and her symptoms abated. Her better adjustment to her husband was promoted by his willingness to change under the guidance of the psychiatric social worker.

Freud saw anxiety as a signal within the ego, warning of danger from the pressure of unacceptable internal attitudes. This patient had depended upon her husband for love and affection since she was deprived of these by her parents in her early life. The husband's illness threatened her source of dependency

as well as making the additional demand upon her—for her to look after him. The removal of business responsibility reduced her opportunity for constructive work and an outlet for her aggression. The rejection by her husband was a further emotional deprivation. She then began to use defense mechanisms of projection and denial, with destructive attitudes toward her husband. Anxiety from these attitudes manifested themselves in various psychosomatic symptoms.

When a patient manifests an emotional conflict by psychophysiological symptoms, he often denies his emotional illness. Such a patient does not readily respond to medicinal treatment alone. The attending physician must find a way to identify underlying problems and the possible role of environment in the patient's illness. In the detection of such problems, caution should be taken not to antagonize the patient even when clinical findings fail to substantiate an organic basis for the symptoms. Psychiatric treatment can benefit such patients, as it did in this particular case.

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Briefs from Poison Control Centers

Editor's Note: The JOURNAL is pleased to publish as the first of a series of short articles devoted to experiences in a Poison Control Center. This one is submitted by the Center at KUMC. Others would be welcome from any of the Poison Control Centers over the

Darvon, Dieldrin and Noludar

JOHN E. CHAPMAN, M.D. and
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The following three cases were seen recently at the Poison Control Center of the University of Kansas Medical Center. While quite different chemical intoxicants were involved all were extremely common materials (both therapeutic and nontherapeutic) which exist in the patient's home environment.

These cases illustrate the importance of understanding and anticipating the pharmacological action of the materials ingested and the proper application of supportive treatment, and attempts to antagonize the effects of the chemicals.

Case 1

A 62-year-old white, married, female was brought into the emergency room at 4:00 a.m. A history was obtained from her husband that at about midnight she had taken 12 capsules each containing 65 milligrams of "Darvon," or a total of 780 milligrams of the drug. At approximately 2:00 a.m. she was noted to be unresponsive and at 4:00 a.m. was brought into the Poison Control Center. At the time of admission, the patient was severely obtunded with a respiratory rate of 5 per minute. Blood pressure was 100/65, pulse was 72 and regular. The pupils were round and equal and reacted to light. The deep tendon reflexes were hypoactive.

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Endotracheal intubation was performed and the patient was maintained on positive pressure respiration for the first two hours of hospitalization. She subsequently became less severely depressed and the endotracheal tube was removed. She continued to be somewhat stuporous during the first hospital day but approximately 18 hours after ingestion of the drug became fully alert and insisted upon being discharged from the hospital. Laboratory examination revealed normal urinalysis and blood counts. Serum SGOT and SGPT transaminases following admission were 33 and 34 units. Gastric contents and urine were negative for barbiturates.

The patient also gave a history of grand mal seizures which have been controlled with phenytoin and diphenylhydantoin (Dilantin).

Dextro propoxyphene hydrochloride (Darvon) is a synthetic analgesic drug which is related to morphine in its analgesic potency to codeine. Reported cases of intoxication due to over dosage of this drug have exhibited central nervous system depression. All but one of these patients have recovered.

Two cases have been reported of individuals who presented with coma complicated by grand mal convulsions. On the basis of these reports it would be possible that the agent may produce convulsions as well as central nervous system depression. In one case receiving large amounts of this drug, respiratory depression was followed by death due to respiratory arrest.

is no antidote for dextro propoxyphene poisoning. The stomach should be emptied as soon as following ingestion of larger amounts. This is approximately four hours after ingestion in man. In addition, adequate support of the respiratory system, such as endotracheal intubation, positive pressure ventilation, etc., are indicated. If seizures do occur, they should be controlled by the administration of a parenterally acting barbiturate. These drugs should be used cautiously because of their depressive actions on the central nervous system. Animal studies have indicated that nalorphine hydrochloride (Nalline) may be of value in the management of respiratory depression caused by this drug. In one case of a child who had ingested between 400 and 600 milligrams of the drug, treatment consisted of nalorphine and oxygen. Nalorphine and oxygen were used, as was an anesthetic, halothane, for treatment of the convulsions in this child.

A 26-year-old white, married, female was brought to the emergency room with the history of having ingested about five ounces of an insecticide containing Dieldrin approximately one hour prior to entry. She had subsequently ingested two to three ounces of a dilute ammonia solution and following this, had vomited several times. Upon examination in the emergency room she appeared to be slightly confused, and was submitted to a gastric lavage of 600 ml. of water. Her vital signs from this were clear, but had a peculiar

character. Approximately one and one-half hours after ingestion she began having generalized grand mal seizures. There was a total of 13 grand mal seizures, lasting from three to five minutes each in the interval between 1:00 p.m. and 1:45 in the afternoon. She was treated with barbiturates, both intramuscularly and intravenously. The acute episodes of generalized convulsions were controlled with the administration of 50 milligrams of sodium pentothal intravenously.

Physical examination was essentially normal. In addition to barbiturates, she was given oxygen and an airway was maintained by frequent suction. During the evening of the first day she received sedation with phenobarbital.

ECG showed non-specific T wave changes which reverted to normal on the day after admission. Other laboratory studies were essentially normal except for a slight increase in the serum

glutamic-oxalacetic transaminase. On the third day she was transferred to the Psychiatric Service.

Dieldrin is a very effective insecticide which is one of the chlorinated hydrocarbon group. It is relatively insoluble in water, but well absorbed from the gastrointestinal tract and stored in the fatty tissues of the body. Its most significant action in man is to produce stimulation of the nervous system resulting in recurrent generalized convulsions. The treatment is to antagonize its effects with short-acting barbiturates, preferably given intravenously. Rather large doses of barbiturates may be required in the management of such cases.

Initially, an attempt should be made to remove all dieldrin in contact with the patient's skin by scrupulously cleaning the fingernails, hair, and other areas which may have had contact with the material. Where it has been ingested, lavage is indicated.

Case 3

This 26-year-old colored female was brought to the emergency room approximately one hour after ingesting eight or nine Noludar tablets of 300 milligrams each. Approximately one-half hour after ingesting these tablets she was found at home in a semi-comatose state and brought to the emergency room. Gastric lavage was performed at this time. Physical examination revealed a blood pressure of 110/80, respirations were 16 per minute. The patient was semi-comatose, and reacted to painful stimuli. The pupils were equal and reacted to light. The deep tendon reflexes were active and equal. Approximately one hour after gastric lavage she was reactive and talked in an oriented fashion. She was subsequently admitted to the hospital for further observation with regard to psychiatric help. Laboratory work revealed a trace of albumin in the urine; hemoglobin was 12.2 grams; blood urea was 11 milligrams per cent; and a fasting blood glucose was 76 milligrams per cent.

Noludar (3,3-diethyl-5-methyl-2,4-piperidinedione) is a non-barbiturate sedative-hypnotic. The fact that this patient had a gastric lavage approximately an hour after ingesting this material probably is responsible for the rather rapid recovery from her semi-comatose state. It is doubtful that the total ingested dose, which was less than 3,000 milligrams, would have produced severe central nervous system depression with respiratory failure. In this case, as with all other short-acting hypnotics, support of the patient's cardiovascular and respiratory systems should constitute adequate treatment.



Severe, Radiating Right Inguinal Pain

Case Presentation

The patient for discussion today was a 68-year-old farmer who complained of severe pain in the right inguinal region of three weeks duration. The pain radiated into the right testicle, the inner aspect of the right thigh, the back and the left abdominal region. Associated with the pain was frequency of urination, dysuria, anorexia and fever, but no nausea, vomiting or diarrhea. For two weeks before admission he had noted bright red blood in his stools. He had had a recurrent low abdominal pain associated with constipation and relieved by laxatives for several years. He was afforded some relief from the pain by assuming a sitting position with his legs flexed and drawn toward his chest. About two weeks before admission he had a sudden onset of numbness and weakness of his right arm and leg associated with some mental confusion. One week before admission he was hospitalized elsewhere. He continued to have pain, and he was subsequently sent here for evaluation.

He had had the usual childhood diseases. Two years before his admission here he was hospitalized elsewhere for arthritis. For the past two years he had been taking digitalis which had originally been given to him because of dependent edema. He had smoked two packages of cigarettes daily for 54 years, and he had consumed large amounts of alcohol.

His mother died at the age of 69 of diabetes mellitus; his father died at the age of 72 of cancer of the liver. One brother had peptic ulcers, and another brother had asthma.

During the previous winter he had had severe headaches, exertional dyspnea, a chronic cough productive of sputum, three pillow orthopnea, paroxysmal noc-

turnal dyspnea and progressive pedal edema. He had also lost an unknown amount of weight.

On admission he was a well developed, well nourished, white man who was confused and agitated and in acute distress, sitting doubled up in bed and complaining of right inguinal pain. His pulse rate was 65 and the rhythm was regular; blood pressure, 115/65; temperature, 99°; respiratory rate 20. His skin and mucous membranes were dry. The tongue was coated, and the pharynx was red. The chest was hyperresonant to percussion, and there was an increase in the anteroposterior diameter. Rales which cleared on coughing were heard in both bases. There was a presystolic gallop rhythm. The abdomen was soft but somewhat tender in the mid-right and lower quadrants. The liver was palpated 3 cm. below the costal margin and was somewhat tender. Bowel sounds were active. No unusual masses were palpated. There was 2 plus pitting edema of the legs. The rectal examination was negative except for diffuse tenderness. There was questionable left facial weakness and questionable deviation of the tongue to the right.

The specific gravity of the urine was 1.025 with a trace of albumin, one to two hyalin casts, and two to four pus cells per high power field; pH 5. The hemoglobin was 13.2 gm. per cent; hematocrit, 44 per cent. A white count on admission was 18,600 with 73 per cent polymorphonuclears (70 per cent filamented and three per cent non-filamented), 20 per cent lymphocytes, five per cent eosinophiles and two per cent monocytes. On the third hospital day a white count was 15,830 with 90 per cent polymorphonuclears (69 per cent filamented and 21 non-filamented), nine per cent lymphocytes and one per cent basophiles. A sedimentation rate was 24 mm. at 30 minutes and 25 mm. at 60 minutes. The VDRL was non-reactive. The BUN on admission was 34 mg. per cent; one day before death it was 132 mg. per cent. The blood glucose was 95 mg. per cent. Serum sodium was 132 and 141 mEq, and chlorides 94 to 99

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

mEq per liter. The potassium was 5.0 mEq on admission, and 5.2 mEq on the day before death. The cholesterol was 120 mg. per cent with 58 per cent esters; the calcium was 4.9 mEq; and the phosphorus, 1.9 mEq per liter. Total serum proteins were 6.4 gm. per cent; albumin, 2.73; globulin, 3.67. Serum amylase was 126 units and lipase was 0.9 units. Lucine aminopeptidase was 155; SGOT, 35; SGPT, 18. The total serum bilirubin was 0.2 mg. per cent with 0.1 mg. per cent direct; alkaline phosphatase, 0.4 milimole units; thymol turbidity, 2+; prothrombin activity, 75 per cent of normal; cephalin flocculation, two. Histoplasmin and tuberculin skin tests were negative at 48 hours. A urine culture was negative. The spinal fluid protein was 30 mg. per cent, with one red cell, and the colloidal gold curve was 0011100000.

The patient continued to complain of right inguinal pain and maintained a position with his legs drawn toward his chest. He was placed on a low sodium diet and given digitalis and codeine. On the second hospital day multiple successive generalized convulsions developed, but they were effectively treated with sedatives and CO₂ inhalations. A lumbar puncture showed an opening pressure of 130 mm. of water and the spinal fluid was clear. Following the seizures his temperature was 104.2°. He was given diphenylhydantoin sodium and barbiturates. The abdominal pain was unabated. On the fourth day he developed abdominal distention and urinary retention necessitating the insertion of a Levine tube and a Foley catheter. The next day an exploratory laparotomy was performed, and after this he developed a septic type of fever with a rectal temperature of 102 to 103°. He was restless and confused. On the second postoperative day he became hypotensive and his respiration was labored. Despite antibiotics, intravenous fluids and whole blood transfusions he became comatose and developed Cheyne-Stokes respiration. He died on the seventh hospital day.

Dr. Mahlon Delp (moderator): Are there any questions?

Mr. John B. Runnels (student):* Can you describe the pain, duration and onset?

Dr. Stanley R. Shane (resident in medicine): Unfortunately, I cannot give you any more information than is contained in the protocol. He continued to complain of pain in his right inguinal region, and at various times it radiated into his right testicle and back and around his back and into left abdominal region. The pain was steady.

Mr. Runnels: Was there evidence of colic at any time?

* Although a student at the time of this conference in October, 1960, he like the others referred to as students, received the M.D. degree in June, 1961.

Dr. Shane: No, but he said that on previous occasions he had had constipation associated with a type of colic pain that was relieved by laxatives.

Mr. Wilber L. Murray (student): Please describe the convulsions.

Dr. Shane: The description in the chart is that the patient was apparently sitting on the side of his bed very tremulous, shaking, confused and rather agitated. Following this was a note that he had convulsions and was treated with the medications indicated on the protocol. Nothing further was given.

Mr. John L. Reese (student): Do we have any history of his previous hospitalization?

Dr. Shane: No.

Dr. Delp: Dr. Allen, can you tell us whether the pain began suddenly or in the middle of the night or under what circumstance? What were the observations made while he was in any other hospitals?

Dr. Max Allen (internist): The pain was gradual in onset and had become progressively more severe until the time that he was transferred here. The patient almost continually refused to lie on his back for his abdomen to be examined.

Dr. Delp: Thank you. Other questions?

Mr. Don R. Loudon (student): I would like to ask Dr. Allen about the fever, did his doctor mention anything about that?

Dr. Allen: No.

Mr. John K. Layle (student): Was there any history of hypertension?

Dr. Shane: No, there was not.

Mr. Frank G. McKnight (student): Would you please describe the rectal bleeding?

Dr. Shane: Bright red blood was noted on the stools a few weeks before admission.

Mr. McKnight: Did he actually have any such bleeding after he came in here?

Dr. Allen: No, he had none.

Mr. McKnight: Did he ever have any diarrhea?

Dr. Allen: No, not while he was in this hospital.

Mr. Loudon: What was his temperature course?

Dr. Shane: He was afebrile until about the third hospital day when his temperature was recorded at 104.2°. Rectal temperatures taken daily ranged between 102 and 103°.

Mr. Reese: Was there any abdominal rigidity when he was distended?

Dr. Delp: The description of the abdomen indicates that there was no abdominal rigidity, at least it was not mentioned. The one thing they recorded was that the abdomen was soft, but somewhat distended.

Mr. Murray: Was there any description of peripheral pulses—particularly the femoral?

Dr. Shane: They were palpable, and recorded as 3 plus.

Mr. Layle: Was there any nodularity of the liver?

Dr. Shane: Nothing was mentioned to indicate that.

Mr. Layle: Was there any mention of lymphadenopathy?

Dr. Shane: No, there was not.

Mr. Loudon: What was his neurological status on admission?

Dr. Shane: The reflexes were equal and active, and there were no pathological reflexes.

Mr. Loudon: What was his sensory status throughout the course?

Dr. Shane: He was periodically confused and agitated, progressively more so during his hospitalization.

Dr. Delp: I think one consultant recorded slight hyperreflexia on the left.

Mr. Runnels: Do you have any more information on the pedal edema?

Dr. Delp: The most that was ever recorded was 2 plus.

Mr. Runnels: Was there any history of chest pain?

Dr. Delp: I think that, on the fifth hospital day, he complained of a very violent pain in the top of his head, and later that day the nurse recorded that he complained of a pain in his chest. She also said that the patient did not seem to understand and that his speech was a little difficult to understand.

Mr. Murray: Did any further urinalyses show red blood cells?

Dr. Delp: Two other specimens contained red blood cells.

Dr. Brown (internist): What medications were given?

Dr. Shane: The only medication that he was taking was a digitalis preparation, and he had stopped it a few weeks before.

Dr. Delp: Dr. Allen, had this man ever taken adrenal cortical steroids?

Dr. Allen: No.

Dr. Delp: May we see the electrocardiograms?

Electrocardiograms

Mr. Murray: This man had five daily electrocardiograms taken while he was in the hospital. The first three were essentially the same. The one taken on the third hospital day (*Figure 1*) shows a regular sinus rhythm with a rate of about 65. The main QRS vector is about 60 degrees. There is flattening of the T waves throughout. There are Q waves in leads V4R, V-1, and V-2. The P-R intervals and Q-T intervals are at the upper limits of normal. The absence of an initial R wave in leads V-1 and V-2 would lead one to suspect that he had an old anterior or antero-septal infarct. There is also ST segment depression in lead II and reciprocal elevation in AVR. In view of the prolongation of the QRS interval and the presence of S waves in leads I, II and III he also might have an

incomplete right bundle branch block. The only significant change in the tracing made on the fourth hospital day is the appearance of numerous VPC's which appear to come from very nearly the same focus. I have no explanation for these.

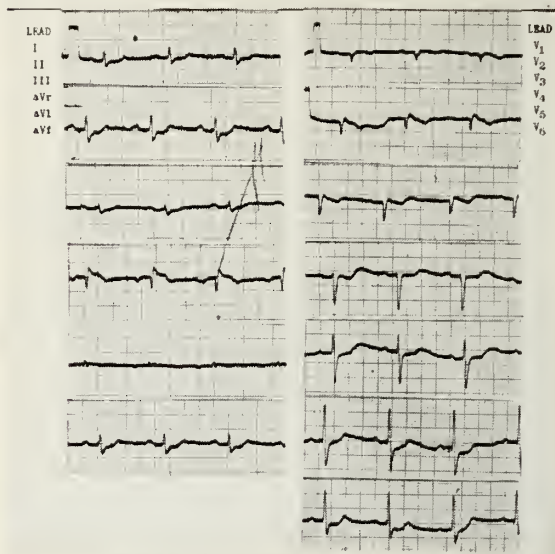


Figure 1. Electrocardiogram on the third hospital day.

Dr. Delp: I am not sure that those were real Q waves with a loss of the R wave over the left precordial leads. There is a slow progression of conversion from the right heart pattern to the left heart pattern. This might have some significance, but I doubt that there is any real evidence of myocardial infarction in these tracings. Can we have the x-rays?

X-Rays

Mr. Reese: We have two series of x-rays taken on this man. A PA and lateral of the chest taken at 5:15 p.m. on the day after admission, and a series of films taken two days before death. The first film is the PA of the chest taken on the day after admission. I see no bony or soft tissue abnormalities. The heart does not appear enlarged. The aortic knob is enlarged and tortuous. The costophrenic angles are clear, and there is no flattening of the diaphragm. The hilar region appears increased in density and there are increased broncho-vascular markings. The second film is a lateral taken on the same day showing a marked increase in the AP diameter with kyphosis and a suggestion of vertebral osteoarthritis with lipping. The heart is not enlarged, and the diaphragm is slightly flat. This next x-ray was taken two days before death and is a KUB in the erect position. The right kidney does not appear to be enlarged, and I do not observe the left kidney. There is significant dilation of the colon with an in-

crease in gas pattern although the colon is in the normal location. There appears to be a mottled area over the wing of the ileum, a ground glass appearance type phenomenon. I see no bony abnormalities. The second KUB (Figure 2) was taken approximately four hours later. There is a suggestion of the flattening of the diaphragm. On close inspection, there is an area under the diaphragm that might suggest air. In conclusion, I think these x-rays are compatible with chronic emphysema, atherosclerosis of the aorta, distal colonic obstruction with possible perforation, and possible abscess formation in the right lower quadrant.

Dr. Delp: All right, thank you. Mr. Runnels, may we have your discussion.

Mr. Runnels: I shall limit my discussion to the causes of severe radiating right inguinal pain that is relieved by the assumption of a jackknife position. This pain may be reproduced by several mechanisms. First, it may be a manifestation of referred pain of the urinary tract. Second, it may be due to nerve irritation at approximately the T-12 to L-2 levels. The third mechanism could be direct irritation of the peripheral counterparts of the ileo-inguinal, ileohypogastric and possibly the genitofemoral nerves. The fact that this patient's urinary frequency appeared simultaneously with the onset of pain favors urinary tract involvement and production of renal or ureteral pain. Primary renal pain classically refers to the costovertebral and lumbar regions. On occasion, however, the pain distribution such as this could be produced. Pyelonephritis and pyelonephrosis are eliminated because of the absence of bacteriuria, pyuria, hematuria, and costovertebral angle pain. About 50 per cent of the renal tumors are palpable and produce hematuria early in the course; 50 per cent produce pain which may be quite severe upon invasion of the capsule of the renal pelvis, but this pain is characterized by flank and costovertebral angle distribution. We dismiss this diagnosis because of the absence of a mass, hematuria and typical pain. Hydronephrosis may be caused by intrinsic or extrinsic factors producing partial or complete obstruction, and obstruction of the ureter could have produced our patient's pain. Renal calculus could also have produced this symptom. The absence of typical radiological and urinary findings are against this diagnosis. This pain distribution is classical for middle or lower ureteral involvement. Intrinsic factors such as clot, ureteral tumor and stone are ruled out because the urine was normal. A lesion involving the renal vessels should have become evident earlier in life. Stricture is ruled out on the lack of history of abdominal surgery and previous stone or instrumentation. Idiopathic paraureteral fibrosis does occur, but is rare. Neoplastic or aneurysmal encroachment upon the ureter are extremely attractive mechanisms. Ab-



Figure 2. KUB film made two days before death.

dominal aortic aneurysms sometimes present urological symptoms, but are ruled out on the absence of a palpable mass and typical radiological findings.

The production of this pain by the involvement of the nerve roots T-1, L-1 or L-2 by intra-spinal causes such as tumor or vascular lesions is ruled out because of the normal spinal fluid. Impingement on these roots by vertebral lesions is eliminated by the laboratory findings. Extra-vertebral involvement of the lumbar roots by neoplastic or infectious processes is a plausible mechanism of the pain.

Our third postulate is the irritation of the ileohypogastric, ileo-inguinal and genitofemoral nerves themselves, and provides a sound anatomical basis for the distribution of the pain and its relief by hip flexion. I shall name gastrointestinal diseases first: perforated duodenal ulcer, perforated gallbladder and acute hemorrhagic pancreatitis may cause this right lower quadrant pain through dependent drainage and chemical irritation of this area. We rule these out on the basis of typical history, course, and laboratory findings. Regional enteritis, although capable of producing pain and rectal bleeding, is dismissed on the basis of lack of diarrhea. The course and findings before the fourth hospital day are not suggestive of intestinal obstruction. Meckel's diverticulitis might provide an explanation for the rectal bleeding but most often presents as periumbilical pain. Diverticulitis is a reasonable diagnosis except that we must postulate a redundant sigmoid colon that explains right sided

pain because only two per cent of diverticula occur in the right colon. Malignant tumors virtually anywhere in the abdomen provide metastases or direct extension, a basis for pain and weight loss. Lower gastrointestinal tract tumors, in addition, give an explanation of bleeding.

Carcinoma of the pancreas is especially attractive because of the frequent embolic phenomenon which could explain some of the neurological manifestations, and because of the characteristic position assumed for relief of pain. The rarity of right lower quadrant pain weighs against this diagnosis. Carcinoma of the colon is ruled out because of the lack of anemia, mass, or change of bowel habits. Small bowel tumors are ruled out on the basis of rarity. Primary retroperitoneal tumors can produce many of the findings of this case. This is a very plausible diagnosis, especially on the basis of a malignant lymphoma which comprise 21 per cent of primary retroperitoneal tumors. Two-thirds of lymphomas present no mass. Only 40 per cent of the patients are anemic or have splenomegaly. I rule this possibility out, however, because 79 per cent of lymphomas and 50 per cent of other tumors present with generalized lymphadenopathy.

A dissecting aortic aneurysm could produce the neurologic symptoms. It could produce severe abdominal pain by pressure or leakage. This diagnosis is ruled out on the lack of chest pain, the quality of peripheral pulses, and lack of inexorable progression of symptoms. Abdominal aortic aneurysm is ruled out on the lack of mass and typical x-ray findings.

Periarteritis nodosa could explain almost all this patient's symptoms—cerebral, cardiac, arthritic and abdominal. Only 25 per cent of these patients have significant eosinophilia. Only because of the lack of hypertension and anemia is there any weight against this excellent diagnosis. Brucellosis, typhoid, histoplasmosis and tuberculosis are ruled out on the absence of lymphadenopathy and the presence of leukocytosis. A tuberculous psoas abscess could produce the patient's pain but is further ruled out by a negative skin test. Although syphilis is notoriously a protean disease, it is eliminated on the basis of a negative serology.

The absence of a heart murmur and anemia negate a diagnosis of subacute bacterial endocarditis. Sarcoidosis is ruled out on the presence of leukocytosis and the absence of hypercalcemia, lymphadenopathy, cutaneous lesions and bone involvement.

Retroperitoneal abscesses can best explain this patient's pain through involvement of ileohypogastric, ileo-inguinal, and genitofemoral nerves as they emerge from the psoas muscle. An abscess secondary to staphylococcal bacteremia is ruled out on basis of history, wound infections and mass. A primary renal abscess could extend through the capsule to form a

perinephric abscess with subsequent involvement of the retroperitoneal structures. Against this diagnosis is the absence of typical findings of lumbar and costo-vertebral angle pain. The most attractive feature in favor of the diagnosis of a retroperitoneal abscess is that hip flexion classically relieves the pain. I think that this 68-year-old man had acute appendicitis with perforation and the development of a retroperitoneal perineal abscess with subsequent severe radiating right inguinal pain. Only partial relief of this pain was afforded by the jackknife position. He had fever, right lower quadrant tenderness, rectal tenderness and leukocytosis. The abdominal distension and urinary retention on the fourth hospital day can best be explained by rupture of the abscess and the development of generalized peritonitis. Although thoroughly indoctrinated in the holistic concept of diagnostic unity we must postulate multiple diagnoses in this elderly patient. He had chronic obstructive pulmonary emphysema on the basis of increased antero-posterior diameter of the chest and other radiologic findings. The physical findings indicate that he was in mild or borderline congestive heart failure. This was probably on the basis of arteriosclerotic heart disease. The neurologic symptoms are explained on the basis of cerebral thrombosis or relative insufficiency of arteriosclerotic vessels due to cardiovascular insufficiency. Cerebral embolus would be an extremely attractive cause for the patient's neurological symptoms, but in the absence of good evidence of myocardial infarction and absence of myocardial arrhythmias, we must rule this out. Rectal bleeding is explained by hemorrhoidal vein leakage, or erosion of the sigmoidal or cecal mucosa by the abscess. Therefore, we postulate that this man who had been in borderline congestive failure had the sudden appearance of symptoms explained by rupture of acute appendicitis with abscess formation. His course was complicated by cerebral vascular accidents, both before and after admission here. He developed abdominal distension and urinary retention on the basis of a ruptured retroperitoneal abscess. Surgery was performed and he subsequently ran a shocky, septic course until death.

Dr. Delp: Thank you, Mr. Runnels. Mr. McKnight, what was your diagnosis?

Mr. McKnight: The same.

Dr. Delp: Mr. Layle.

Mr. Layle: I think he had retroperitoneal abscesses secondary to diverticulitis.

Dr. Delp: Mr. Loudon.

Mr. Loudon: I think he had a retroperitoneal abscess secondary to a primary malignant retroperitoneal lymphoma with coincidence impingement of the ureter.

Dr. Delp: Mr. Reese.

Mr. Reese: Acute perforated appendicitis.

Dr. Delp: All right. Now let's try to explain a few of the symptoms that he had. Mr. McKnight. What about the dysuria?

Mr. McKnight: This, of course, is most easily explained on a urinary tract basis with ureteral involvement. If he had minor ureteral irritation by the abscess it would give a reflex stimulation and pain.

Dr. Delp: Mr. Layle.

Mr. Layle: I think that he had pain as a result of actual involvement of the ureter, not just involvement of the ileo-inguinal and ileohypogastric nerves.

Dr. Delp: All right, Mr. McKnight, what about the seizures the man had?

Mr. McKnight: They did not sound like generalized convulsions to me. This seizure, or whatever he had, is perfectly compatible with the delirium and shivering associated with his fever.

Dr. Delp: Mr. Runnels, do you really think that this man had convulsive seizures?

Mr. Runnels: I don't know.

Dr. Delp: Mr. McKnight, do you think that this patient was in congestive failure during any time of his period of hospitalization?

Mr. McKnight: He did not have a large heart on the x-ray, he had a slow rate and not a very good sign of pulmonary edema physically or by x-ray. He had a history of being off digitalis prior to coming into the hospital, and cardiac symptoms did not seem to be a predominant part of the picture when he entered. I think he might have been in borderline heart failure.

Dr. Delp: Mr. Reese, can you offer any other explanation for these signs that have been alluded to, as evidence of heart failure?

Mr. Reese: Well, he had chronic emphysema; he could have had right ventricular failure.

Dr. Delp: How in the world did he get that emphysema?

Mr. Reese: Smoking.

Dr. Delp: Absolutely, smoking two packs of cigarettes a day! Mr. McKnight, the only note in the record regarding the patient's abdominal auscultation says that he had normal bowel sounds. Does this bother you?

Mr. McKnight: Was that an admission note?

Dr. Delp: Yes.

Mr. McKnight: I think he probably did have normal bowel sounds on admission because he had not ruptured his abscess yet.

Dr. Delp: All right, now I would like to get some other views on this case. Dr. Berry, what do you make of it?

Dr. Maxwell G. Berry (internist): I will have to go along with the students. I am very glad to have them diagnose appendicitis because I think one of the best rules you can make for your professional life is

that any patient with a belly pain has appendicitis until you have proved it to be something else. That is a good rule to go by, and will keep you from getting mixed up and missing a diagnosis of appendicitis. I think the man did have appendicitis with a ruptured appendix and an abscess.

Dr. Delp: Thank you, Dr. Berry. Dr. Allen?

Dr. Allen: The initial impression I had of this patient was of an elderly man sitting on the side of the bed leaning forward and smoking a cigarette. I am not sure he didn't have one in each hand. His hands were yellow clear up to the middle of the dorsum of the hand, and I think there was a box of kitchen matches laying near with his cigarettes. This is a clinical picture of an unkempt man smoking this much who on further examination obviously had pulmonary emphysema, and who was an excellent candidate for carcinoma of the lung. The fact that he was sitting on the side of the bed and had pedal edema (and I am told he had been sitting on the side of the bed for a week prior to that time) made me think that the pedal edema might simply be due to the posture. When we tried to examine him by having him lie down he was reluctant to lie down at all. He would not straighten his right hip at all. We had difficulty in evaluating his abdominal findings. During the course of taking history and talking to the patient's wife it became obvious that this man was not a reliable historian at all. My impression after the initial examination was that he likely had retroperitoneal malignant disease. I thought, of course, of carcinoma of the pancreas, and I had to think of carcinoma of the lung with metastatic disease of the spine or retroperitoneal structures. The previous history of stroke and the minimal findings of asymmetry of the face had to be explained on the basis of cerebral metastasis from such a tumor or cerebral vascular disease.

Dr. Delp: Dr. Hardin, your impression was quite correct, so would you tell us about it, and tell us what you found at surgery?

Dr. Hardin: I had the advantage of seeing this man after he developed his distention. The thing that impressed me was the position which has been alluded to, the flexion of the hip, tenderness in the right lower quadrant is always indicative of appendicitis, even in the absence of a leukocytosis or vomiting. This very often is indication enough to make a diagnosis. Now you must remember that the child and the elderly adult act differently than the teenager or the person of age 20 or 30. I thought that the patient had an appendiceal abscess which was ruptured causing peritonitis and ileus—a quiet abdomen. At the time of surgery there was generalized peritonitis and a ruptured appendix.

Dr. Delp: Thank you. We will now have the pathologist's report.

Pathological Report

Dr. James Boley (pathologist): The body had a mild icteric tint to the skin. The lungs had an advanced grade of emphysema but no infarcts or pneumonia. The heart was enlarged; the myocardium was hypertrophied and showed areas of fibrosis substantiating the history of hypertension. The coronary arteries had minimal arteriosclerosis.

The most significant findings were in the abdomen. A fibrinopurulent peritoneal exudate was generalized and locules of purulent exudate were found in the subphrenic region and in the abdominal wall within the healing operative wound. A comparison of the exudate at autopsy with that found at the time of appendectomy is of interest. The appendiceal exudate (*Figure 3*) was organizing and fibrinopurulent; that is, it contained fibroblasts and proliferating capillaries, whereas that seen on the intestine at the time of autopsy (*Figure 4*) was fibrinous, contained very few inflammatory cells and showed no evidence of organization. This proved that the patient had the former process for a longer time, and had the ability to localize his first periappendiceal infection. The generalized spread was, on the other hand, of recent origin, and showed no tendency to organize. It had almost no leukocytic response. Group D streptococci and *E. coli* were cultured from the peritoneal exudate.

In addition to the insult of generalized peritonitis was a pseudomembranous enterocolitis. This process involved large areas of the small intestine and colon, the latter often having ulcerated areas beneath the pseudomembrane. An occasional ulcerated area (*Figure 5*) had thrombosed vessels in the submucosa, which lends support to Penner's theory of pathogenesis of pseudomembranous enterocolitis. This condition has most often been reported to have followed surgery and, especially, the extensive use of broad spectrum antibiotics. Some authors have stressed accompanying distention and shock. This patient, although supposedly a hypertensive, had a persistent low blood pressure before and following the appendectomy. The use of antibiotics for a short time was, therefore, of questionable significance as to etiology.

The liver and biliary tract revealed no cause for the mild jaundice so it must be explained on the basis of sepsis and blood destruction beyond the excretory capacity of the liver.

An incidental finding in the surgical specimen was a diverticulum of the appendix (*Figure 6*). These diverticula are located near the mesoappendix, lined by mucosa and muscularis mucosa, and occur in approximately three per cent of surgically removed appendices. They occasionally show ulceration and



Figure 3. Partially organized exudate on surface of appendix. Arrow indicates proliferating capillary. Hematoxylin and Eosin stain. $\times 120$.



Figure 4. Fibrinous exudate on serosa of ileum. Arrow indicates swollen mesothelial lining. Hematoxylin and Eosin stain. $\times 120$.

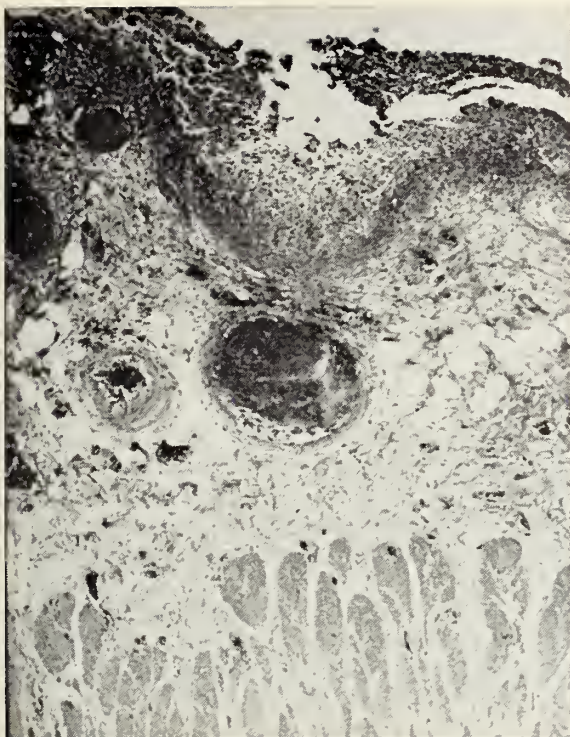


Figure 5. Pseudomembranous enterocolitis with ulceration of mucosa and thrombosis of submucosal vein. Hematoxylin and Eosin stain. $\times 120$.



Figure 6. Diverticulum of appendix. The mucosal herniation is into the base of the mesoappendix. Hematoxylin and Eosin. $\times 7$.

inflammatory manifestations identical with that of acute appendicitis.

In summary, this patient had acute appendicitis with perforation, subdiaphragmatic and periappendiceal abscesses. Following appendectomy a generalized peritonitis developed which resulted in his death. The pseudomembranous enterocolitis was a contributory factor although it was not clinically manifest.

Dr. Delp: I think that the implications are rather clear—the principal one being that appendicitis has very deceiving ways, particularly, as Dr. Hardin has mentioned, in the very young and in the elderly.

Pathological Anatomical Diagnosis

Appendicitis, acute, with rupture and periappendiceal abscess.

Peritonitis, generalized.

Abscesses, right subphrenic, and abdominal wall, right lower quadrant.

Pseudomembranous enteritis, advanced with ulcers of rectum.

Hypertrophy and dilatation of the heart.

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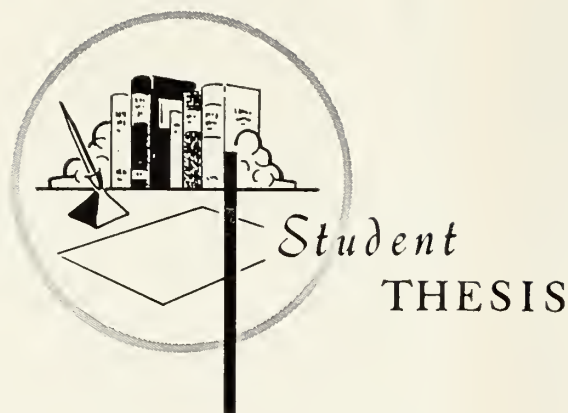
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Regional Perfusion Utilizing an Extracorporeal Circuit: A New Technique for the Chemotherapy of Cancer

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CHEMOTHERAPY, the use of natural or synthetic chemicals in the treatment of disease, is based on a method devised around 1900 by Paul Ehrlich, a German chemist. Ehrlich developed a scientific method of exhaustive experimentation utilizing all the known chemicals from the chemists' shelves. He was searching for, "Substances which have an affinity to the diseased cells and a power of killing them greater than the damage such substances cause to the organism itself." The chemical agent should retard, inhibit or even destroy the lesion without seriously hurting the organism. Unfortunately, neither Ehrlich nor his contemporaries were able to develop or discover any substances that would fulfill his criteria in the treatment of cancer.

It was not until almost fifty years later that the chemotherapy of cancer became a reality. In 1946 Gilman and Phillips, while conducting research on various nitrogen and sulfur mustard war gasses, discovered that in addition to being contact vesicants, these chemicals could after absorption produce cytotoxic effects. Their studies revealed that the B-chloroethyl amines have a cytotoxic effect on cells closely resembling that of x-rays. The cellular susceptibility to this compound appeared to be related to the degree of proliferative activity of the cells. The nitrogen mustard (HN_2) was given to mice with transplanted

mouse lymphosarcoma. This tumor is usually x-ray sensitive and exhibits a high degree of cellular proliferation. The tumors rapidly disappeared. However, the dose required approached the toxic level and the tumors invariably recurred. Subsequent trials of nitrogen mustard in 150 patients with Hodgkin's disease, lymphosarcoma or leukemia resulted in temporary palliation in a majority of the patients with Hodgkin's disease. Little effect was noted in those with lymphosarcoma or leukemia. They found that, "The therapeutic efficacy of nitrogen mustards is no greater than that of x-rays."

The limiting factor in the use of these agents is the toxic effect on normal tissue. Particularly subject to damage are the lymphoid tissues of the thymus, spleen, and lymph nodes, the bone marrow and the intestinal mucosa. Therefore, administration of doses that are minimally effective against the tumor tissue is accompanied by the depressing temporary lymphopenia, granulocytopenia, thrombocytopenia and transient gastrointestinal disturbances. Large doses are hazardous to life due to the increased and often irreversible hematopoietic depression and the effects of prolonged nausea and vomiting.

Irradiation is still the most successful method of cancer therapy because it can be administered in fractional doses to localized tumors without the side effects of bone marrow, lymphatic and vital organ damage. If the effects of administration of HN_2 could be localized to the region of the tumor, it would be comparable to fractionated irradiation of local tumors. Effective treatment with higher dosages

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Charles E. Schaefer, M.D. is now serving internship at the U. S. Army, Fitzsimons General Hospital, Denver, Colorado.

would be made possible with minimal damage to normal tissue in other areas. The accidental injection of HN_2 in the brachial artery of a patient with Hodgkin's disease suggested a new method of therapy to Klopp *et al* in 1950. He felt that intra-arterial injection of the drug could produce within the area supplied by the artery an intense cytotoxic reaction from which normal tissue could recover but the neoplastic tissue would not. This was not a new idea as intra-arterial injection of antibiotics and heparin had been successfully employed since 1945.

Klopp and his associates developed techniques for the intra-arterial administration of nitrogen mustard. A cannula was placed in the major artery supplying a tumor-bearing site and nitrogen mustard was administered in single or fractionated doses. It was observed that the hematologic consequences were the same following intravenous and intra-arterial administration. When tourniquet or ligation occlusion of the venous drainage of the tumor area was combined with intra-arterial administration of the agent, there was an increase in the intensity of the regional effect and a decrease in the severity of the systemic toxic effect. Klopp also states, "The use of a heart-lung mechanical pump to maintain the circulation of an isolated tumor-bearing extremity during the period of therapy would prevent action of the drug on the remainder of the body."

In spite of the increased effectiveness of this new technique, the limiting factor of systemic toxicity still precluded the use of these agents in amounts large enough to completely eradicate the malignant neoplasm. But Klopp *et al* had suggested a method that with a few modifications could expose the malignant tumor to maximally effective concentrations of the drug without risking irreparable damage to the hematopoietic and gastrointestinal systems.

Experiences with a heart-lung apparatus in the treatment of intra-cardiac defects suggested to Creech and his associates that this extracorporeal circuit might provide a means of temporarily isolating and maintaining a tumor-bearing area while it was being perfused with maximal amounts of an alkylating agent. If they could achieve complete vascular and lymphatic exclusion, the systems toxic effects should be eliminated while the specific activity of the agent would be brought to bear only upon the tumor and its immediate environment.

Creech and his co-workers utilized a recent finding of Churchill-Davidson, Sanger and Thomlinson in the design of their apparatus. They demonstrated that the sensitivity of all cells to damage by ionizing radiation is related to the oxygen tension around them at the time of irradiation. In all types of neoplasms there may be areas of low oxygen tension resulting either from the type of tumor structure, or inadequate circulation or both. Cells in these areas

are protected from injury to a great degree during conventional radiotherapy and may survive to cause recurrence of the growth. With this in mind, Creech incorporated a bubble oxygenator into the extracorporeal circuit. Thus he was able to produce oxygen tensions of 500 to 600 mm/Hg in the perfusion blood. Theoretically this should increase the oxygen tension around the neoplastic cells, thus enhancing the effect of the radiomimetic drug.

Creech and subsequent investigators have been successful in designing a surgical technique for isolating certain vascular beds from the general circulation. They have been able to isolate limbs, breast, intestine, liver, pelvis, lungs, certain areas of the head, and the entire head from the systemic circulation and perfused them for periods up to 90 minutes.

The extracorporeal circuit consists of a bubble oxygenator and a Sigmamotor pump. A disposable oxygenator was used which had a reservoir capacity of about 500 ml. and an oxygenating capacity of about 4,000 ml. per minute. Utilizing 100 per cent oxygen the blood was completely saturated at an oxygen pressure of 500 to 600 mm/Hg. In lung perfusion it was necessary to employ a systemic extracorporeal circuit. For this purpose a DeWall, helix-reservoir type of bubble oxygenator was used.

The major blood vessels are exposed, isolated and catheterized. The oxygenator is primed with heparinized blood and heparin is administered to the patient intravenously in a dose of 2 mg. per kg. of body weight (100 USP units per mg.). The vascular catheters are connected to the pumps and the perfusion begun. Temperature of the blood was maintained at 38 C. with a 250-watt infrared lamp. In the limbs a tourniquet is applied proximal to the incision to occlude venous and lymphatic drainage into the general circulation. Papaverine (180 to 300 mg.) is first introduced into the arterial line followed immediately by the chemotherapeutic agent.

Relatively low flow rates are utilized in order not to exceed the amount of blood that can be recovered via the venous catheter. Theoretically, low flow rates permit better mixing of the drug with the tumor by allowing the drug to remain in the area a longer time. In addition, slower administration probably lessens leakage into the systemic circulation. After perfusion is completed the vascular bed is washed out with Dextran followed by heparinized blood. This is accomplished through a T-valve connection in the arterial side of the system, without permitting the medicated blood to re-enter the patient. An antiheparin drug is given intravenously and the wound is closed.

The technique for limb perfusion is tailored for the location of the lesion.

Popliteal perfusion is employed for lesions below the knee. The popliteal artery and veins are exposed through the medial aspect of the lower thigh. Cathe-



Figure 1

ters are inserted, a tourniquet is applied around the middle thigh and the leg is perfused (Figure 1).

Tumors of the lower extremity that tend to metastasize to the femoral lymph nodes, such as carcinomas and melanomas, are perfused through the femoral triangle after a femoral node dissection. This lessens the risk of cutting into the tumor to expose the femoral vessels. Catheters are inserted into the femoral artery and great saphenous vein. A Steinmann pin is driven into the iliac crest at a 45° angle. The extremity is then isolated by an Esmarch bandage wrapped tightly around the upper end of the thigh and held in place by the pin (Figure 2).

If the lower extremity lesions has metastasized to the iliofemoral nodes and a radical groin node dissection is indicated, the perfusion is accomplished in two stages.

First, an iliac and obturator node dissection is carried out from the bifurcation of the vessels down to the level of the inguinal ligament. Then the limb is perfused via the iliac artery and vein. The deep circumflex iliac, inferior epigastric and obturator ves-



Figure 2

sels are ligated to reduce leakage into the systemic circulation. Catheters are inserted through the external iliac vessels until the tips reach the uppermost portion of the femoral triangle. This introduces a maximum of the antitumor agent in the principal areas of metastasis. A tourniquet is applied in the same manner as for a femoral perfusion. After an interval of two to four weeks a femoral node dissection is carried out and the limb is immediately perfused in the same manner as before. Stehlin *et al* feel the femoral nodes act as a temporary barrier to the proximal lymphatic spread of the disease during the first stage of the operation (Figure 3).



Figure 3

For lesions of the upper extremity without clinically positive nodes in the axilla, perfusion is accomplished through the proximal portions of the axillary artery and vein. The catheters are inserted and the tips are placed at the level of the insertion of the deltoid muscle. A tourniquet is applied proximally (Figure 4). If, however, the axillary lymph nodes are



Figure 4

clinically positive, the tips of the catheters are passed to the midportion of the axillary artery and vein and both arm and axilla are perfused. This is followed immediately by radical lymph node dissection (Figure 5).



Figure 5

Perfusion of the breast is accomplished through the subclavian artery and vein. When possible, the vessels are occluded proximal to the internal mammary branch and the catheters inserted in a distal direction. A tourniquet is placed on the ipsilateral limb prior to perfusion (Figure 6).

Aortic perfusion has been utilized principally for inoperable lesions of the pelvis, but Stehlin feels that the procedure may have some utility as adjunctive treatment before or after pelvic operations. This procedure is carried out through a midline abdominal incision. The epigastric vessels are ligated within the abdominal wall. The aorta and vena cava are mobilized by ligating and dividing the lower lumbar vessels and occluded temporarily below the renal vessels. The inferior mesenteric artery, superior hemorrhoidal vein, testicular vessels, posterior division of each hypogastric artery and external iliac vessels are temporarily occluded. Tourniquets are placed on both thighs and catheters are inserted into the distal

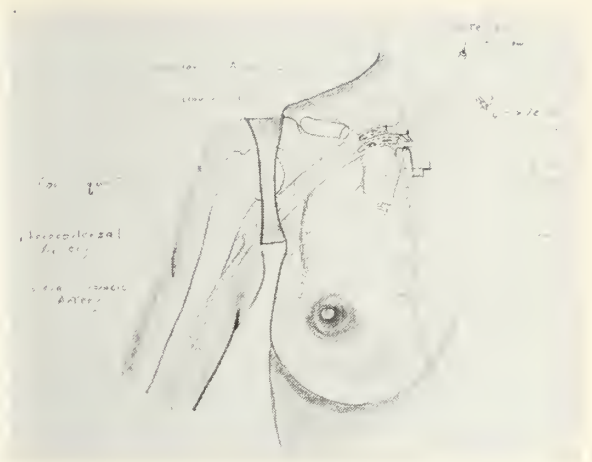


Figure 6

aorta and vena cava. The flow rate is adjusted to create a negative pressure in the venous system draining the pelvis. This is to prevent blood containing the alkylating agent from spilling or being forced into the systemic circulation (Figure 7).

The fact that the liver is one of the organs of the body most commonly involved with cancer prompted Ausman and Aust to develop a technique for isolated perfusion of this organ. It was postulated that metastatic cancer in the liver receives its blood from the high oxygen hepatic artery supply. They insert a catheter into the splenic artery up to its junction with the hepatic artery. A large lumen catheter is inserted into the vena cava below the liver. The gastroduodenal artery, left gastric artery, the tributaries of the celiac axis, portal vein and aorta above

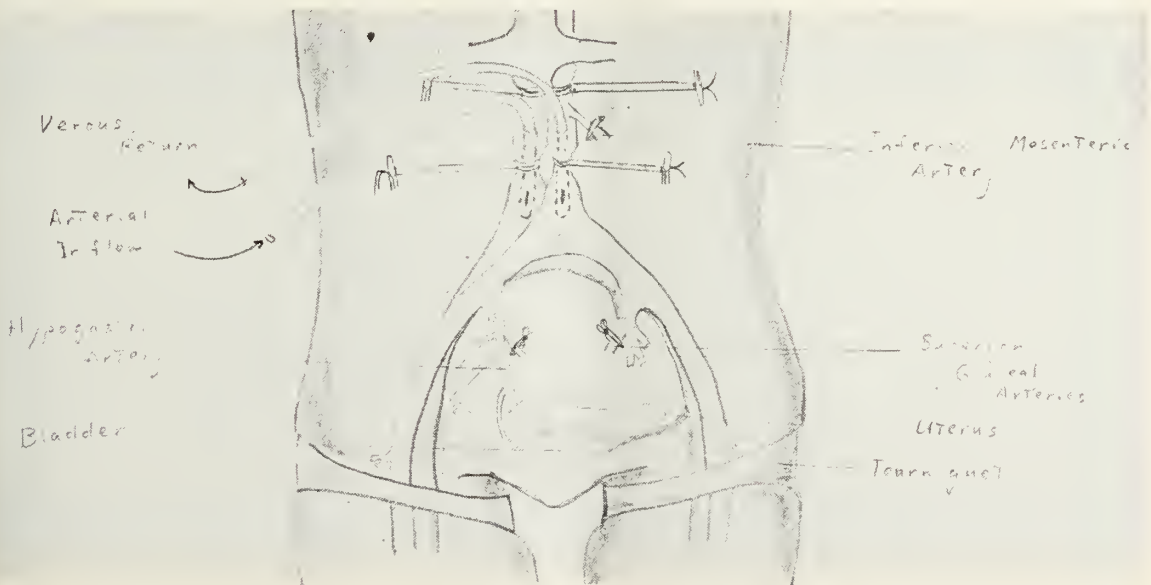


Figure 7

the celiac axis are temporarily occluded while the perfusion proceeds (*Figure 8*). Venous blood collected from the vena cava is composed almost entirely of perfusion blood from the liver. There is little flow of venous blood from the lower extremities and bowel due to occlusion of the aorta. Their perfusion is necessarily shortened due to the presence of the kidneys distal to the aortic occlusion. The authors have employed this procedure on four patients with some success. Final evaluation will require many years.

Creech and his workers have designed a technique for perfusion of the lungs containing unresectable neoplasm. A bilateral thoracotomy is performed at the level of the fourth intercostal space. The epicardium was opened and a plastic cannula passed into the vena cava via an incision in the right atrial appendage. The right femoral artery was exposed in the groin and cannulated. The caval and arterial cannulas were then connected to a pump-oxygenator system. Next a catheter was placed into the left atrium through the appendage. The arterial line from the perfusion oxygenator was connected to a catheter passed through the right ventricle and pulmonic valves and into the pulmonary artery. Tapes passed around these major vessels were tightened about the catheter. The vena cava was occluded. An additional catheter was inserted through the wall of the right atrium to pick up coronary venous return. It was connected to the systemic extracorporeal circuit. The system was stabilized and the perfusion conducted for 30 minutes. Blue dye studies showed no spill-over from the pulmonic to the systemic circuit. There was a 100 ml.

volume gain in the pulmonic perfusion circuit representing bronchial artery flow (*Figure 9*).

Perfusion through the external carotid arteries has been used by Stehlin in treating tumors of the oral, nasal and pharyngeal cavities. Catheters are inserted into both arteries because of the extensive cross anastomosis. Only those branches of the external carotid artery supplying the tumor area directly or indirectly are left open. The common facial veins on each side of the face are employed for the return flow. All others are ligated. After the perfusion is completed, the major vessels are reopened or repaired (*Figure 10*).

Stehlin has on one occasion perfused the entire head including the brain. This was carried out through the common carotid arteries and internal jugular veins bilaterally. The thyrocervical trunks and the vertebral arteries and veins were temporarily occluded, and the perfusion begun. He makes no mention of the effects of this procedure on the patient (*Figure 11*).

Mahaley, Woodhall and Knisely have, using a similar technique, perfused the brains of a number of dogs with good results. They employed anti-cancer drugs in concentrations three times the general body minimum lethal dose without any damage to cerebral tissues or permanent toxic manifestations. This work is not well documented and bears further study.

For patients whose disease is not regionally confined, a technique to total body perfusion has been devised by Creech *et al.* Sternal bone marrow transplantation is used to treat the resultant hemopoietic depression. Perfusion is accomplished with catheters

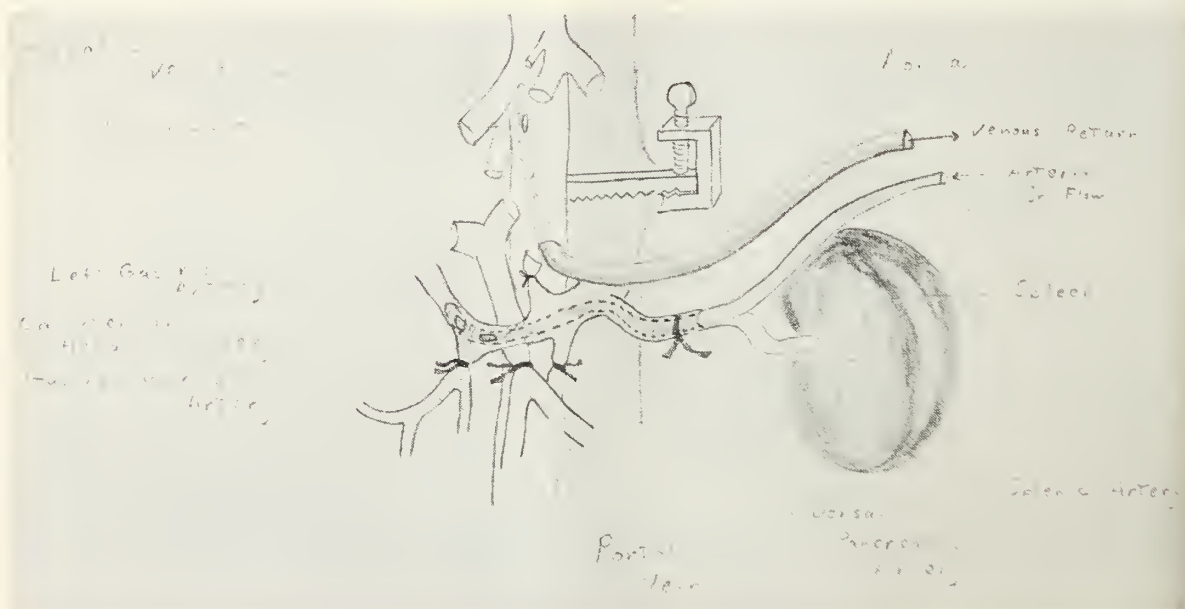


Figure 8

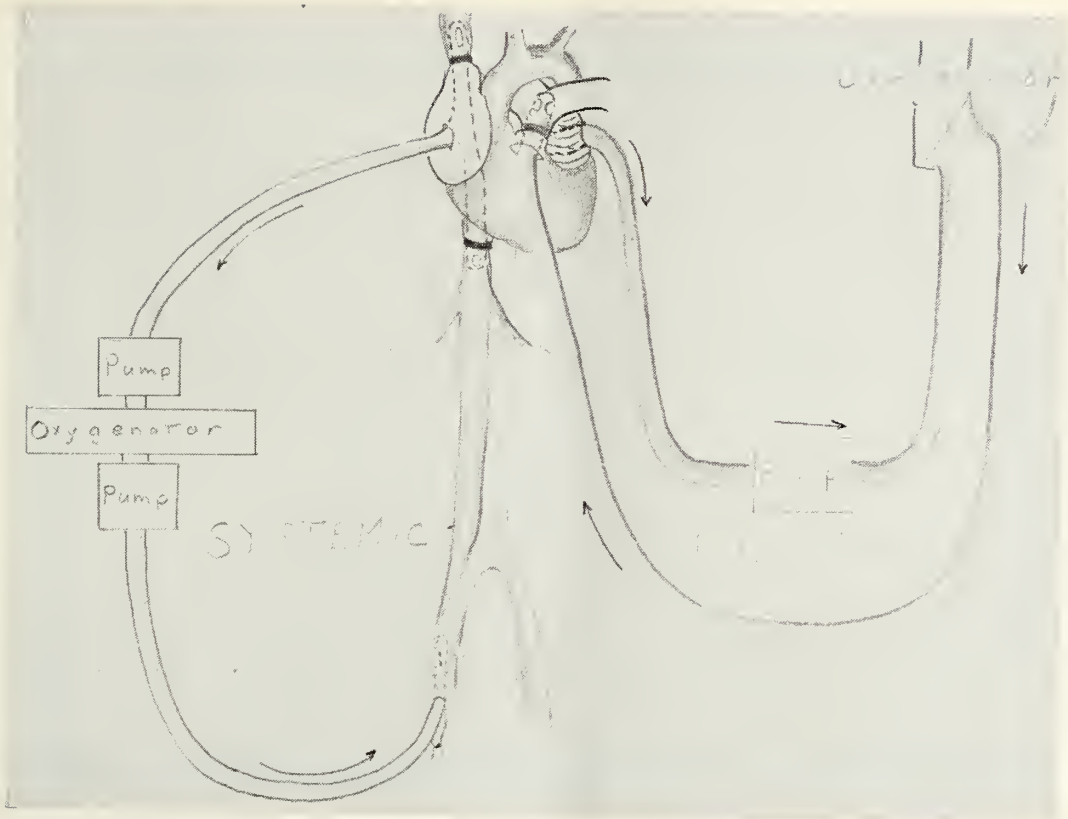


Figure 9

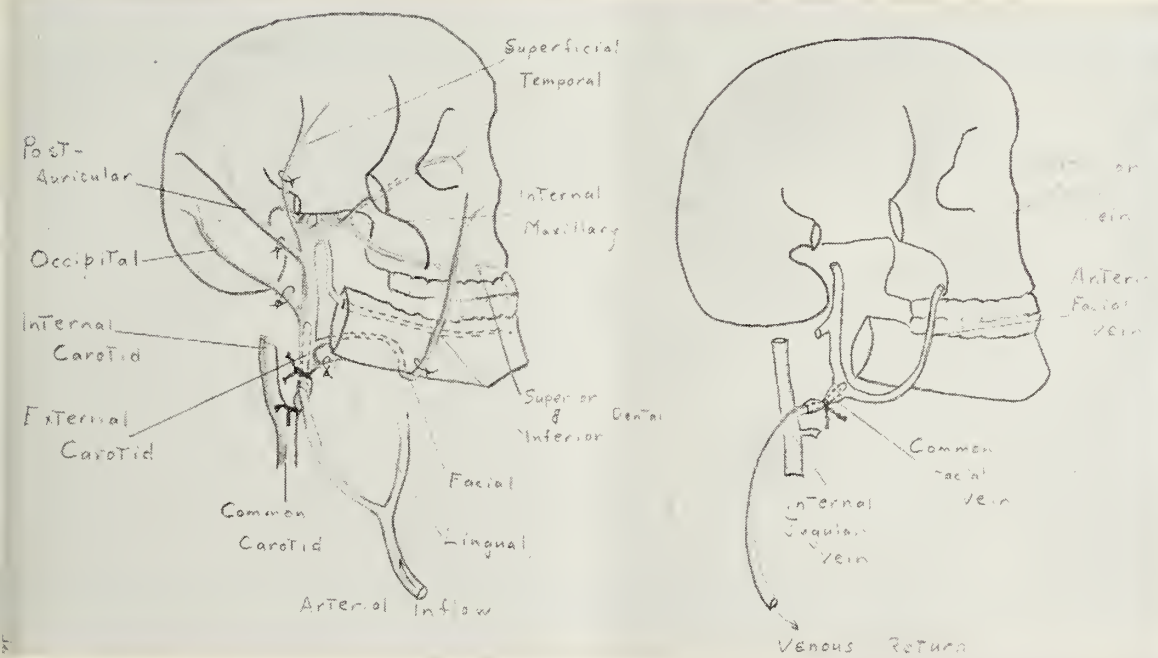


Figure 10

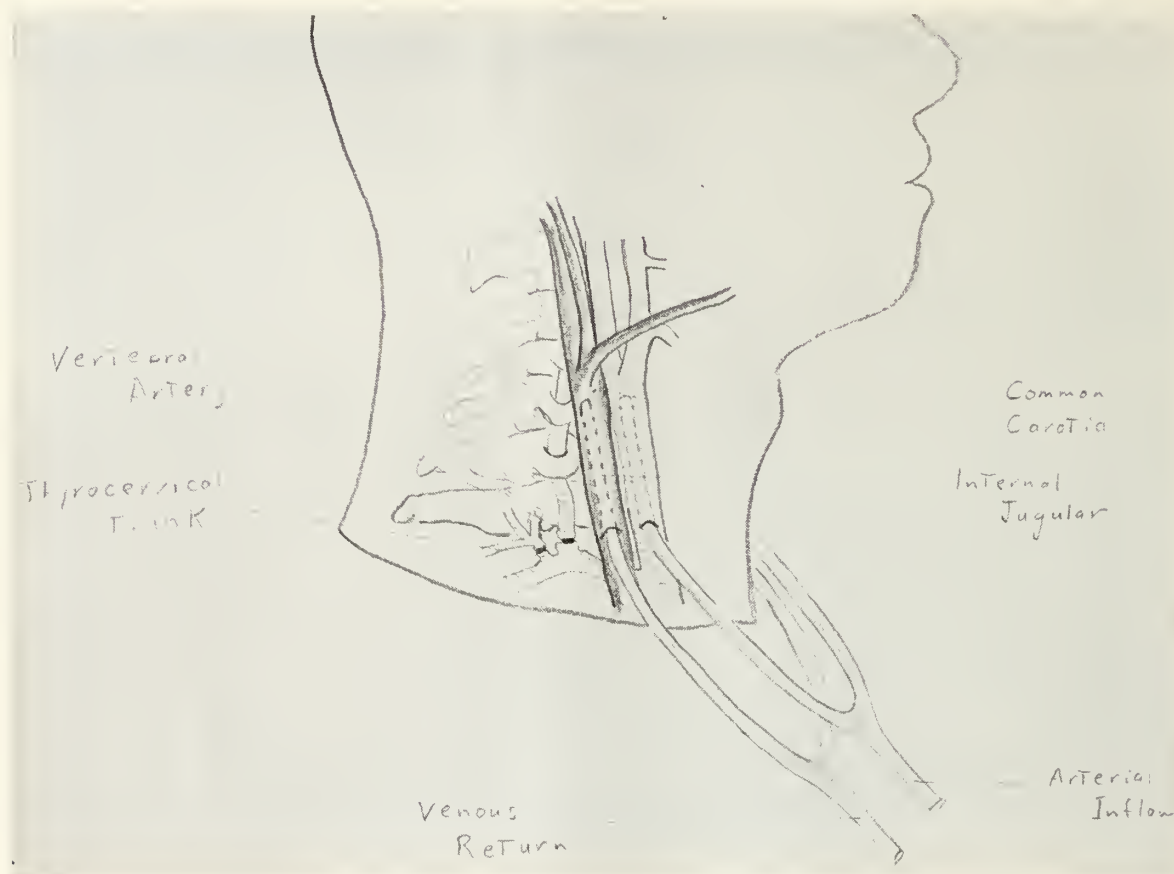


Figure 11

inserted through the femoral artery to the level of the distal aortic arch and into the inferior vena cava via the femoral vein. Catheters have also been inserted through the abdominal wall for cooling of the viscera with iced saline. Theoretically, this minimized the toxic effect on the gastrointestinal tract. The marrow is replanted after the perfusion is complete and the chemotherapeutic agent is no longer active.

Ideally, the highest possible dose of an anti-tumor agent should be administered. This maximum dose depends on two important factors: (1) The amount of drug the normal tissues can tolerate without being permanently damaged; and (2) the cross-circulation or leakage of the perfusion media into the systemic circulation.

With respect to local tissue tolerance, the dosages have been fairly well standardized through clinical experiments. As always, the dosage has to be individualized but if calculated correctly, the changes in the affected normal tissues are usually of no clinical consequence. These changes may be petechiae, erythema, mild edema, and tanning of the skin.

The percentage of cross-circulation has been determined by Stehlin *et al* using radioactive iodinated serum albumin as a test agent before administration

of the anti-tumor agent. In perfusion at the popliteal level, leakage is negligible, at the femoral and iliac level there is a leakage factor of 10-20 per cent after one hour. This amount varies according to the size of the extremity, abundance of collateral circulation and effectiveness of the tourniquet.

If axillary perfusion is performed with the tips of the catheter in the deltoid region and a tourniquet at a high proximal level, no leakage takes place. If the tips of the catheters are placed in the second portion of the axillary vessels without a tourniquet, the cross-circulation approaches 100 per cent after one hour. In aortic perfusions for pelvic cancer, the cross-circulation is 50 to 75 per cent at one hour and the average value for the external carotid circuits is 70 to 80 per cent. No value is given for perfusion of the entire head. Using Stehlin's method, the degree of isolation of the perfusion circuit can be determined before the injection of the chemotherapeutic agent.

Thus, regardless of the drug employed in perfusion of the distal extremities, local tissue tolerance presents the only question as to dosage. At all other levels the leakage factor and subsequent systemic toxicity and local tissue tolerance are of practically equal importance.

See Table 1 for recommended dosage of a number

of chemotherapeutic agents in relation to the body area perfused.

The method of administration of the agents and management of the perfusion procedure vary with the duration of action of the chemotherapeutic agent. Nitrogen mustard, triethylene-thiophosphoramide (TSPA, Thio-TEPA), methotrexate and 5-Fluorouracil (5 FU) remain active in the blood from 5 to 20 minutes. They are given in four equal doses five minutes apart, and the perfusion continued for a total of 30 minutes. Phenylalanine mustard (PAM) and TSPA are longer acting and are given in two equal doses five to 10 minutes apart. The total period of perfusion is 45 to 60 minutes, followed by flushing of the system with Dextran and whole blood to remove all possible traces of the anti-tumor agent. Actinomycin-D has a duration of action between nitrogen mustard and PAM and is usually given in two to three doses 10 minutes apart.

The chief systemic complications incident to perfusion are directly related to the amount of drug that leaks into the general circulation and its direct effect on the hematopoietic system. A moderate to severe pancytopenia has been reported in a number of instances. Not infrequently an anemia appeared within 48 to 72 hours after the perfusion, principally as an effect of the chemotherapeutic agent on the red cells. The half-life of the red blood cell was reduced and hemolysis was demonstrated postoperatively by the presence of free hemoglobin in the urine. These major complications can best be minimized by more effective isolation and washing out the perfused region with Dextran and whole blood.

Following perfusion some patients have exhibited a number of protean symptoms. Malaise, anorexia, prolonged nausea, vomiting, fever, tachycardia and hypotension may be a manifestation of the general systemic and gastrointestinal toxicity of the chemotherapeutic agents. These may also be related to necrosis of the tumor and absorption of the end-prod-

ucts. Tumor necrosis may also lead to hemorrhage into the lesion necessitating hemostatic surgery.

Blistering of the skin and tissue gangrene are the most serious local complications. This may be so severe that amputation of the extremity will have to be performed.

An attempt to evaluate the end results of therapy is difficult at this stage of the research for a number of reasons: (1) the technique for isolation and perfusion of the tumor area is experimental and not standardized; (2) different dosage schedules and combinations of chemotherapeutic agents have been used by various authors; (3) none of the investigators have treated a significant number of patients and followed them for an adequate length of time; (4) reported cases have not been well documented with clinical evaluations before and after treatment and biopsy for histological study. In spite of this, a number of important observations have been made.

Creech reported 37 cases treated for carcinoma, Malm, 16, and Stehlin, 23. The areas involved include the breast, rectum, colon, lung, genital-urinary system, liver, oralpharynx, pelvis and extremities. The chemotherapeutic agents used were nitrogen mustard, TSPA, Actinomycin-D (ACT-D), PAM and 5-Fluorouracil. Advanced adenocarcinoma and squamous carcinoma showed essentially no objective response or change in their clinical course. Malm reports two carcinomas of the prostate in which there was a decrease in gland size to one-half its volume following pelvic nitrogen mustard therapy. However, repeated punch biopsies failed to show any significant gross histological changes in the tumor.

Creech divided his carcinoma cases into two groups, those treated for palliation and those treated as adjunctive therapy prior to removal of the primary lesion. He treated nine cases as an adjunct to surgery. One patient died as a result of perfusion. The remaining eight patients showed no evidence of residual or recurrent tumor six to 18 months after surgery. Of the

TABLE 1
RECOMMENDED DOSAGE OF AGENTS
(Per KG. Body Weight)

Agents	Upper Extremity	Lower Extremity	Level of Perfusion			Total Body
			PELVIS	BRAIN	EXT. CAROTID	
HN ₂	0.6 mg.	0.8 mg.	1.0 mg.	—	0.3-0.4 mg.	0.8-1.5 mg.
PAM	1.5 mg.	1.5 mg.	2.0 mg.	—	0.7-1.0 mg.	—
TSPA	0.8 mg.	1.0 mg.	1.0 mg.	—	—	—
ACT-D	35 γ	50 γ	50 γ	—	—	—
5-FU	15 mg.	20 γ	20 mg.	—	—	—
Thio-TEPA	1.0 mg.	1.0 mg.	—	0.5 mg.	—	—
Methotrex	0.5 mg.	0.5 mg.	—	—	—	—

remaining 28 cases treated on a palliative basis there were four operative deaths, six are alive with controlled or quiescent disease, and in 18 the response was temporarily or entirely absent.

Creech has treated 18 cases of sarcoma by perfusion and Stehlin has treated 16. The chemical agents used here are nitrogen mustard, phenylalanine mustard, Actinomycin-D and 5-Fluorouracil. Stehlin and his workers report a more significant regressive change following perfusion with phenylalanine alone or combined with nitrogen mustard than with nitrogen mustard only. Creech treated four sarcomas on an adjunctive basis. One patient died, one had recurrence and two patients were alive with apparent eradication of the tumor 18 months after radical surgery. There were five deaths among the 14 patients in which perfusion was palliative. In five cases the tumor was apparently eradicated or controlled.

These apparent good responses may be due in part to the location of the tumors in the extremities and the ease of complete vascular isolation and the use of high concentrations of anti-tumor agents.

Creech reports 18 cases of malignant melanoma treated by perfusion with phenylalanine mustard. All but three of the lesions were located in the extremities. There were four cases in which the primary lesion was excised and the limb then perfused as adjunctive therapy. All the patients are alive, one with recurrent tumor and in three the tumor was apparently eradicated after 18 months. Fourteen cases were treated on a palliative basis. Two patients died, one from an overdosage of phenylalanine mustard, and the other from visceral metastases six months following perfusion of the lower extremity. In seven, the tumor was apparently eradicated or is quiescent and in five the lesion was recurrent.

Stehlin also reports that the majority of melanomas in his series are apparently sensitive to this therapy when phenylalanine mustard is used. Here, as before, the apparent good results may be due to the location of the tumor, but probably more important is the nature of the neoplasm itself. The malignant melanomas are among the most unpredictable tumors in oncology because some of them are highly malignant with a poor prognosis, whereas others with a similar histologic pattern may act in a relatively benign fashion.

Malm reports a single case of brain perfusion with Thio-TEPA for recurrent frontoparietal glioblastoma following secondary operative decompression. "During perfusion the electroencephalogram improved over the right hemisphere and immediately following operation the patient was reacting and showed no deleterious effects from the therapy." But as the author states, it is much too early to evaluate the technique or the drug in this disease.

One of the most apparent symptomatic improve-

ments noted by the three above mentioned authors was the relief of pain. While it was not consistent in all cases, some patients with pain from pressure or invasion of peripheral nerves received relief within 24 hours of perfusion. The relief lasted four to six weeks.

The experiences gained in the isolation-perfusion treatment of these few reported cases suggests that some human neoplasms can be controlled by the administration of chemotherapeutic agents in high concentration. But here, as in all therapeutics, there exists a variation in the response of the malignant tumor to these agents. Tumors of the same histological type with similar histologic behavior are inconsistent in their response to the same drugs given in the same manner.

There is a need for a specific *in vitro* sensitivity test of chemotherapeutic agents. Creech suggests that the lesion be biopsied and the specimen treated immediately with the anti-tumor agents in therapeutic concentration. The cells are then stained with vital dyes and examined microscopically for evidence of cell death. This method, if it works, could determine specificity of an agent for a tumor prior to therapy.

Isolation-perfusion techniques afford a method of *in vivo* testing of toxic and tumoricidal potentialities of new chemo-therapeutic agents and metabolic conditions that may effect the tumor growth. Perfusion, especially below the popliteal level, affords an excellent opportunity for studying the biologic responses of tumors to massive doses of chemotherapeutic drugs. Cellular and chemical alteration taking place post-operatively can also be determined. Amputation properly timed, if possible, would provide the entire tumor treatment area for histological examination.

Stehlin suggests that perfusion offers several theoretical advantages as an adjuvant to surgical excision. Solid tumors may be destroyed by the procedure. At present the prospect of success in this regard is remote. Malignant cells may be damaged in such a manner that metastatic lesions are unlikely following dissemination or implantation during conventional surgery. Regional perfusion may allow more conservative amputation or excision. Some tumors technically inoperable, such as those in the pelvis, may be rendered operable. The perfusion may destroy loose tumor cells in the lymphatics. Lastly, he suggests that it may one day be possible to perfuse prophylactically isolated organs commonly the sites of metastases.

Stehlin also suggests that this form of therapy, either by altering the tumor itself or its environment, may result in dissemination of viable tumor cells. This incident coupled with lowered host resistance due to leakage of the drug into the systemic circulation may lead to fulminating metastatic disease and a hastened demise of the patient. There is a need for caution in the use of these drugs and objectivity in assessing its results.

It has been shown that certain tumor-bearing areas of the body can be isolated and perfused with high concentration of chemotherapeutic agents. If the right combination of environmental factors and the proper anti-tumor agent or agents could be brought to bear on a neoplastic growth, total destruction of the tumor should be possible without seriously affecting the host. Unfortunately, the correct combination has not been achieved. Persistence in the use of perfusion from a developmental standpoint will undoubtedly provide additional information on the use of chemotherapy for human neoplasms.

It remains to be seen whether isolation-perfusion will prove worthwhile as a method of treating patients with certain types of malignant disease. The techniques of the procedure, by affording a means for the experimental investigation of human tumors, an opportunity not offered by any other method, will contribute immeasurably to an understanding of the biologic characteristics of malignant lesions. The end result will be less radical, more effective therapy, and perhaps some day prevention of the disease itself.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

HEADACHE—HOPE THROUGH RESEARCH

Headache victims in the United States spend an estimated \$300 million each year on popular "remedies," according to a new brochure released today by the U. S. Public Health Service.

"Headache—Hope Through Research" explains some of the causes and types of headache, and reviews the latest treatments known to medical science. The publication also tells of the efforts medical research is making to learn the secrets behind this condition that affects man on an almost universal scale.

For professional treatment, the Public Health Service recommends that headache sufferers think first of the family doctor: "Research in headache is making such strides today that you need to keep in touch with your doctor to gain the advantage of improved treatments. If necessary, he will refer you to an appropriate specialist, for example, an internist or a neurologist."

The publication explains that headache is a symptom rather than a disease. While it suggests immediate self-treatment of some headaches, the brochure warns that "relieving a headache with a self-chosen painkiller could amount to covering up the symptom without diagnosing a possibly serious cause."

The brochure holds out hope for two of the most common types of chronic, repeated headache—the migraine and the "tension" headache.

Research has found that a temporary narrowing of blood vessels in the head marks the early painless stage of migraine. Medicines which contract the dilated arteries characteristic of the second stage of migraine have been found helpful in ending a migraine attack altogether. Failure to stop the attack in this stage often leads to the full migraine or "steady" headache. Medical scientists hope that a recently developed prescription medicine will show continued success as a preventive of migraine headache, when given between attacks.

Continuing research projects, such as those being sponsored by the National Institute of Neurological Diseases and Blindness, could eventually produce a preventive and a better treatment for muscle contraction headache.

"Headache—Hope Through Research" was prepared by the National Institute of Neurological Diseases and Blindness. It is listed as Public Health Service Publication No. 905 and Health Information Series No. 104.

Single free copies may be obtained from the Public Health Service. Orders under 100 are ten cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. There is a 25 per cent discount on orders of 100 or more going to one address.

The President's Message

DEAR DOCTOR:

The last annual meeting of the Kansas Medical Society made one realize the various forces which are functioning in our society. It demonstrated the fact that organized medicine cannot maintain the status quo but must continue to evolve. No longer can we be concerned only with the health of our citizens, but we must also give attention to their socio-economic status. It is necessary that these areas of interest, for the future of medicine, be discussed and attitudes developed to promote those interests which are in accord with our principles.

Nowhere was this more apparent than in the free discussion in the reference committees, and on the floor at the House of Delegates meetings. The instructions of the House of Delegates, as stated in the resolutions, will be met by your officers and council to the best of their ability.

As President, I would like to compliment the host society, the Delegates to the House of Delegates, and the members, who contributed to making this a very exceptional meeting.



Norton L. Francis M.D.

President

Official Proceedings

Report of 1962 Meeting of the House of Delegates

The transactions of the 103rd Annual Session will be published in this and the July issue of the JOURNAL.

Resolutions were introduced at the first House of Delegates meeting. With the exception of Resolution No. 55, they were all referred to Reference Committees and appear in the minutes of the second House of Delegates meeting as they were adopted. Resolutions failing to pass are retained in the minutes at the Executive Office, but are not recorded here.

First Session

The first session of the House of Delegates of the 103rd Annual Session of the Kansas Medical Society convened at the Town House Hotel, Kansas City, Kansas, at a breakfast meeting at 7:30 a.m. on Monday, April 30, 1962.

F. E. Wrightman, M.D., President, called the meeting to order and announced to the delegates that the order of business would follow the By-Laws and that resolutions should be introduced at this meeting and voted on at the second session.

L. S. Nelson, Sr., M.D., of Salina, appointed by the president to serve the House of Delegates as sergeant at arms, announced that 112 registered as voting delegates to this session, which constitutes a quorum.

REPORT OF THE CONSTITUTIONAL SECRETARY

This is the Membership Report of the Kansas Medical Society for 1962:

Dues-Paid Members	1,440
Honorary Members	168
Emeritus Members	11
Leave-of-Absence Members	55
In-Service Members	4
Delinquent Members	189
Total	1,867

The total membership in 1962 represents an increase of 28 members over the total for 1961 and is the largest total membership ever attained by the Kansas Medical Society.

LELAND SPEER, M.D., *Secretary*

REPORT OF THE EDITOR

The JOURNAL during the past year has continued with approximately the same distribution of original

articles, tumor conferences, clinical pathological conferences, student theses, etc., though to a total accumulation of a few less pages than the previous year. The amount of advertising material was likewise less than during 1960, but this is a situation which has been common to many medical publications, in both the state journal class, and among the larger nationally-circulated journals. This decrease in advertising has been due in part to the unfavorable reaction of investigating committees toward "promotional expenses," and in part to the fact that there have been fewer new drugs introduced. We should recognize the fact that some of the pharmaceutical manufacturers have maintained their advertising schedules with state medical journals, in spite of these reasons why they might reduce them, and this has in at least one instance been done specifically as a means of supporting medical societies. We are grateful to those advertisers who continue to sponsor the JOURNAL and others like it, even though pressure is exerted on them from other sources to discourage it.

The cash balance of the JOURNAL is satisfactory. We have an increase of \$5,000 in our bank balance as compared to a year ago, and the money which has not been necessary for operating expenses is being accumulated for future Society use. We also have \$16,000 deposited in savings accounts for future Society purposes when needed. We are pleased that in spite of some decrease in our revenue, we have been able to end the year with a black-figure balance, for during part of the year this did not seem likely. You might be interested—and perhaps surprised—to know that the JOURNAL expenditures during the year passed have been \$27,911.51.

I have previously reported to you our concern about the future of our JOURNAL, as well as of other similar state journals. The difficulty of obtaining scientific material is as real as it has been for the years past, and were it not for the wonderful cooperation of the staff at the University of Kansas School of Medicine we would have had an extremely limited scientific section. Last year I reported to you that 44 per cent of our papers came from the University; this year that figure has risen to 65 per cent—essentially two-thirds of the papers published during the year. For this abundance of material we are extremely grateful, and I wish once more to thank Dr. Jesse D. Rising, of the KUMC faculty, who, as our Associate Editor there, has so efficiently done the tremendous job of soliciting, collecting, and editing the papers and the

CPC's and Tumor Conferences from the University.

Admittedly the University School of Medicine is, and would be expected to be, the most fruitful source of material for the JOURNAL. However, I am sure that there is a wealth of interesting medical information, and there are many interesting cases which should be reported from over the state as a whole. I wish that more of you and your colleagues could be induced to prepare articles for the JOURNAL.

We are contemplating, in the future, the development of several special issues—devoted either to related topics, as a symposium-like journal, or to a group of papers from one locality, or to the papers presented at a specific meeting. We are also hoping that we may obtain some of the papers presented at this meeting for publication. Solicited articles may be the secret of continuing a scientific section of the JOURNAL, and we feel that they can be interesting and informative.

There are also going to be some new regular pages in the JOURNAL, sponsored by Society committees or by specialty groups within our membership. These special issues and feature pages require considerable planning, and always take more months for materialization than expected, but we are hoping for something worth-while from these explorations.

During the year Mrs. Betty Marsh, who had been our Managing Editor, left the state, and we were most fortunate in promptly obtaining the services of Mrs. Mary A. Rogers, who has been with the JOURNAL since November 1, 1961. Mrs. Rogers had previous experience closely related to her present work, and was able to efficiently take over the responsibility of the many details involved in production of the JOURNAL. She has been most cooperative, goes about her work quietly and unobtrusively, and gets it done efficiently and promptly. We have a completely happy and satisfactory situation in the JOURNAL office at this time, and other than that I could hardly say more.

The membership of the Editorial Board is the same as in recent years—Drs. David E. Gray, Richard Greer, Dwight Lawson, and John A. Segerson. Dr. Segerson's term of appointment expires at this meeting, and it will be the responsibility of the Council to appoint his successor. I hope that he will be his own successor. As long as I have anything to do with the Editor's job, I am delighted that they all can and will continue as members of the Board, for they have all been most generous and cooperative in giving of their time and efforts toward the welfare of the JOURNAL. I would have no idea of the number of hours which each of them has spent in reviewing articles and in other JOURNAL activities, but it is a considerable amount of time. I know that you will join with me in extending to them a thank-you for their work.

Our stand-by, Mr. Oliver E. Ebel, has continued

his contributions in helping with policy-making, and in supplying the Editorial Comments, both of which are most appreciated activities.

In the latter part of October, 1961, I attended the bi-annual meeting of the State Medical Journal Advertising Bureau in Chicago. This bureau handles the national advertising for some 33 state or regional journals, and as a part of its program to improve these journals has a meeting each two years for discussions aimed at the improvement in material, organization, appearance, readability and cost of publication of our journals. At one of the sessions, as a part of a panel discussion, I was asked to tell about the experiences with our Centennial issue, published three years ago, and to show the end-result of the efforts. With my enthusiasm and interest in that particular issue it was not difficult to comply. The end result of it was that the following day Mr. O. M. Forkert, one of the consultants on format, presented to the JOURNAL an award for the excellence of this Centennial issue—a framed plaque which will be hung in the JOURNAL office. Obviously we were flattered and pleased.

It has been a pleasure to again serve the Society in this capacity, and I, with other members of the Board, hope that we can improve the contents and appearance of the JOURNAL during the coming year. We are anxious to make it what you want it to be, and we welcome your suggestions and your contributions. Obviously not all suggestions can be followed, but I assure you that all will have serious consideration.

ORVILLE R. CLARK, M.D., *Editor*

RESOLUTION NO. 55

WHEREAS, The Kansas Medical Society has again had the misfortune of losing its president through death, and

WHEREAS, following the death of our beloved president, Dr. Harold M. Glover, who had well planned and started the year's activities for the Society, it was for personal or other reasons difficult or almost impossible for those in line to succeed, to accept the responsibility of the presidency for this year, and

WHEREAS, because of his close acquaintance with the immediate problems facing this Society, and

WHEREAS, after having been approached by the Nominating Committee of this Society, Dr. Fred E. Wrightman, consented to fill out the remainder of the term as President of the Kansas Medical Society, if it was the will of the Society, and

WHEREAS, he was duly so elected and has served the Society with honor and distinction, and

WHEREAS, he has done this with considerable personal sacrifice upon his professional time and physical energies, therefore

Be It Resolved, that this House go on record by

the passage of this resolution, the expression of our deepest appreciation and gratitude to our President Fred Wrightman for a job well done.

Doctor Pyle then asked for the immediate adoption of this resolution without referral to the Reference Committee by an expression of the Society in a standing ovation. This was responded to with enthusiasm and thereby adopted.

Second Session

The second meeting of the House of Delegates was held at the Town House Hotel, Kansas City, Kansas, beginning at 12:00 Noon on Wednesday, May 2, 1962. Following registration the meeting was called to order by the President, F. E. Wrightman, M.D., Sabetha, who asked Rev. Dr. Paul B. McCleave, of the A.M.A., to give the invocation,

Doctor Nelson, Chairman of the Tellers Committee, reported the results of the election as follows:

PRESIDENT-ELECT: H. St. Clair O'Donnell, M.D., Ellsworth

FIRST VICE PRESIDENT: J. C. Mitchell, M.D., Salina

SECOND VICE PRESIDENT: G. E. Burket, Jr., M.D., Kingman

SECRETARY: Leland Speer, M.D., Kansas City, Kansas

TREASURER: J. L. Lattimore, M.D., Topeka

A.M.A. DELEGATE 1963-64: L. R. Pyle, M.D., Topeka

ALTERNATE A.M.A. DELEGATE 1963-64: G. R. Peters, M.D., Kansas City

The Nominating Committee was elected by ballot and is listed among the committees in this issue.

The President then asked Dr. James B. Fisher, President of Kansas Blue Shield, for a report on Blue Shield. He read the following written report.

BLUE SHIELD

As your representative in the process of helping guide Blue Shield, I think it fitting and proper to take a brief, careful look at our position as a medical society in relationship to Kansas Blue Shield. Historically, Blue Shield came into being to fill a vacuum—to do a job that was not being done by ourselves or such fiscal agencies as commercial insurance companies (in spite of the request of medicine that this be attempted).

Our concern in this matter—our primary objective—is to permit people of modest means to meet large, unexpected and unpredictable expenses due to illness (over the years the segment of the population that has found this difficult is the lower 70 per cent of non-indigent people), keeping, of course, inviolate, the free choice of physician and patient. As needs and times change, it seems to me our ability to succeed

in this objective depends on our capacity to adjust to changes in economic and social forces and political situations.

I should like to suggest for your consideration that in contradistinction to the oft-repeated reference to third parties, Blue Shield is in reality, an instrument of what is really our only effective and realistic method of providing a two-party transaction.

It becomes a third-party only if, when, and to the degree that the doctors who conceived this plan for the benefit of their patients default in their direct responsibility to participate in the plan, direct the plan, guide it, foster it, regulate it, and insure that it continues to serve its real purpose.

In order to do this, we must unstintingly give it our attention, our time and our best thought so that it will not become as some patients fear, an instrument for regulating doctors' fees.

Further, it would appear to me that we have in our hands a miraculously adaptable vehicle with which to negotiate the rapidly changing trends in social, economic and political changes of these times and the success with which free medicine adjusts to and serves as an active, high-principled force in the pattern of our civilization depends on our determination to make this program serve the primary purpose of medicine, which, of course, is the real welfare of the patient. What is really good for patients is really good for doctors.

To know how to do these things is difficult. It will require courage, persistence, ingenuity, and above all, complete uncompromising adherence to highest principles. In facing the economic and political realities of our situation, it seems to me that we will be in a much better position if we present a solid united front of over 50 million members and 150,000 doctors than we would be as a large group of individuals or small groups dashing off in all directions at once.

The Kansas Medical Society designed Blue Shield as a service to the public and it constituted a facilitation of a two-party contract. A reliable measurement of the public's response is gain or loss in membership. Without exception, since its founding in 1946, Blue Shield enrollment has grown each year. Last year the increase in members was 22,223, making a total of 580,000 members. The purposes of Blue Shield are to help patients pay doctors' bills and to help doctors collect their accounts. Year after year there has been a substantial increase in payments for services. Last year Blue Shield paid directly to Kansas physicians, \$6,710,000.00, up \$190,000 over the preceding year. Liquid reserves are now \$2,641,000 (3 months of total operating expense, including physicians' claims).

Important changes are taking place on the national scene. Most significant of these has been development of Blue Shield's nation-wide plan for the aged. Your support of this plan is sought in a resolution intro-

duced by the Society's Committee on Blue Shield Relations. Your Blue Shield Board of Trustees endorsed the plan and subject to approval of the House of Delegates has authorized participation in it. Similar action is required by the great majority of other State Societies and their Blue Shield Plans before the plan can be offered to the public. As of April 10, 1962, 40 Plans, with endorsement of their sponsoring societies, had approved and accepted the program for the aged. By early fall, perhaps the plan can be announced nationally. The plan is to be offered to anyone over age 65 regardless of their state of health. When one considers the low rate—approximately \$3.00 a month—and the high incidence of illness over the age of 65, one would expect the coverage to be deficient in some respects, but this represents an encouraging start.

It is the feeling of the Blue Shield Board, and it is my feeling, that there is an absolute necessity for medicine to present a solid, united front. Individual differences should be adjusted in the comparative privacy of our own meetings in such matters as relative benefits of specialties, etc.

Another matter of increasing importance is the enrollment of national accounts, meaning firms with employees residing in more than one state. At present we have about 60,000 members, counting employees and dependents enrolled through national accounts. The potential enrollment through national groups in Kansas exceeds a quarter million. These people are preferred risks. We need them to help offset the loss we take on poorer risks and thus hold down dues and hold up fees and benefits. It will be most difficult to realize any more of this potential unless we can offer that service which is uniquely available through Blue Shield—full payment for covered services to low and middle income patients. Increasing pressure is being exerted by both management and labor purchasing national accounts, to have Blue Shield provide service benefits. An example of this pressure is seen in the action of General Motors. Most General Motors employees receive service benefits through Michigan Blue Shield but many thousands are enrolled in states including Kansas, where income levels are either inadequate or non-existent. Illinois and Ohio are two such states. General Motors cancelled enrollment in those states and handed the contract to the commercials. In that action, Blue Shield lost 54,000 subscribers. Presumably, General Motors intends to return to Blue Shield in Illinois and Ohio when a satisfactory measure of predictability can be built into their employees' coverage. The National Association of Blue Shield Plans has worked out and submitted to local Plans for adoption—a national account agreement. This agreement encourages service benefits on a significant and realistic level in terms of present-day incomes. This in no way sacrifices local

control over schedule and payments. Your Blue Shield Board of Trustees has approved participation in this plan, subject, of course, to endorsement of this House of Delegates and solicits your approval in this plan.

If we fail to survive the onslaught and engulfment by federalized administration and regulation, it would seem most dignified, fitting and proper and in the highest tradition of the most enlightened profession of our present-day civilization, to go down fighting, with all guns firing and all flags flying, and all in the same boat, rather than divided, engulfed gradually or suddenly, ignominiously digested at leisure and in segments by our own government.

JAMES B. FISHER, M.D., *President*

The President, then, read a letter from Dr. J. F. Burton, Chairman of the Council on Medical Services of the American Medical Association, commending Henry S. Blake, M.D., chairman of the National Blue Shield Plans, Inc. for the splendid service he had rendered American medicine in this capacity and for his work with the Medical Veterans Association. This was received with enthusiastic applause from the delegates and the Executive Director was instructed to write a letter to Doctor Blake expressing the gratitude of the Kansas Medical Society.

The President announced that a letter from Kansas Blue Cross is requesting the Society to appoint four (4) physicians to the Blue Cross Board. The Council on April 29, 1962, nominated the following names: for a second three-year term: Dr. K. L. Graham, Leavenworth; Dr. R. Sohlberg, McPherson. For the first three-year term: Dr. H. P. Jones, Lawrence, and Dr. K. L. Lohmeyer, Emporia. The President asked for further nominations from the floor. Upon a motion made by Dr. M. C. Eddy, Hays, and seconded by Dr. M. M. Tinterow, Wichita, the nominations were declared closed and the four (4) named physicians were declared elected to the Blue Cross Board of Trustees.

RESOLUTION NO. 1

WHEREAS, the Missouri State Medical Association is inviting the A.M.A. to hold its 1965 Interim Session at Kansas City, Missouri, and

WHEREAS, the Missouri State Medical Association has invited the Kansas Medical Society to be co-hosts with Missouri for this occasion, therefore

Be It Resolved, that the Council submits this question for a decision by the House of Delegates.

Be It Further Resolved, that if and when a formal written invitation is received from the Missouri State Medical Association and if there is assurance there will be no expense to the Kansas Medical Society or any of its component county societies, the invitation to act as co-host to the 1965 A.M.A. Interim Session at Kansas City, Missouri, be accepted.

RESOLUTION NO. 2**Defense Board**

WHEREAS, the Constitution, Article X, Section 1, states that the Council shall elect a Defense Board of three members, and

WHEREAS, the Defense Board has requested this to be expanded to a membership of five (5), and

WHEREAS, this recommendation has been approved by the Council, therefore

Be It Resolved, that the Constitution be amended, Article X, Section 1, to read:

"The Council shall elect and supervise the activities of a Defense Board composed of five members. The term of office for its members shall be for three years each, and approximately one-third shall be elected each year."

RESOLUTION NO. 3**Contributions from Pharmaceutical Houses**

WHEREAS, some pharmaceutical houses which previously exhibited with the Kansas Medical Society have now determined to discontinue exhibiting at state medical society meetings, and

WHEREAS, some of these companies have offered to contribute a sum of money to the Kansas Medical Society to be used for defraying expenses of the scientific program of the Annual Session, provided acknowledgement for this contribution is made in the Official Program, therefore

Be It Resolved, that where an ethical pharmaceutical manufacturer wishes to make a contribution to the Kansas Medical Society to assist in defraying the cost of the scientific program and asks only that the gift be acknowledged in the Official Program and makes no additional requirements upon the acceptance of the contribution, that such contributions be accepted.

RESOLUTION NO. 4**Councilor Reports**

WHEREAS, reports of the councilors were published in the April, 1962 issue of THE JOURNAL, and

WHEREAS, these reports reflect the interest and activity of the councilors as well as the members of the districts, therefore

Be It Resolved, that these reports should be read by the members, and

Be It Further Resolved, that reports of the councilors be accepted.

RESOLUTION NO. 5**Health Care of the Aged**

WHEREAS, the Kansas Medical Society recognizes

that proper health care of the aged presents a complex economic problem, and

WHEREAS, any immediate solution for the problems in this age group will provide the pattern for care among all age groups, and

WHEREAS, the several approaches to the problem, now under consideration in Congress, appear inadequate, therefore

Be It Resolved, that the Kansas Medical Society support any proposal which basically incorporates the following:

1. Voluntary participation,
2. Aid based upon the ability to pay,
3. Shall provide adequate medical and hospital care,
4. Shall be based upon traditional insurance principles and administered through non-government insurance companies, and

Be It Further Resolved, that copies of this resolution be sent to the President of the United States, to the Secretary of the Department of Health, Education and Welfare, and to each Senator and Representative of the State of Kansas, and to the House Ways and Means Committee.

RESOLUTION NO. 6**Committee on Allied Groups**

WHEREAS, the Kansas State Nursing Association has expressed a need for better communication between the nursing profession and the medical profession on both the county and state level, and

WHEREAS, the Kansas Medical Society has a Committee on Allied Groups and the Interprofessional Council for communication on a state level, and

WHEREAS, there is not at this time a formal mechanism whereby such communication can be realized on a local level, therefore

Be It Resolved, that the House of Delegates recommend to the county medical societies the establishment of nursing profession liaison committees, for the purpose of obtaining better communication, understanding and mutual cooperation between the medical profession and the nursing profession.

RESOLUTION NO. 7**Auxiliary Committee**

WHEREAS, in the past year eleven of the seventeen councilor districts held combined district meetings for district members and their wives, and

WHEREAS, invitations were extended to the President of the Kansas Medical Society, the President of the Woman's Auxiliary and the Executive Office staff to attend and discuss matters of interest to the medical society and the auxiliary, and

WHEREAS, through these meetings the two presidents and the executive staff were able to visit with a greater number of the membership than would ordinarily be possible, and

WHEREAS, district members are afforded an opportunity to ask questions about any phase of medical society activity, and

WHEREAS, these district meetings have been especially well received, therefore

Be It Resolved, that the House of Delegates recommend that similar district meetings again be held this year.

RESOLUTION NO. 8

Senior Citizens Health Insurance Program

WHEREAS, a voluntary prepayment program for persons age 65 and over has been developed by the National Association of Blue Shield Plans, Inc. and approved by the Council on Medical Services of the American Medical Association, and

WHEREAS, this program will make prepayment of health benefits available under a system of private enterprise which is in the best interests of the public and the medical profession, and

WHEREAS, the Kansas Medical Society Committee on Blue Shield Relations recommends approval of this plan, therefore

Be It Resolved, that the House of Delegates approve in principle the Blue Shield National Senior Citizen Program providing service benefits based on annual income levels of \$4,000 family and \$2,500 single, and

Be It Further Resolved, that the Committee on Fee Schedule be authorized to negotiate with Kansas Blue Shield an appropriate schedule of payment for this program, and

Be It Further Resolved, that if a satisfactory agreement is reached between Kansas Blue Shield and the Committee on Fee Schedule, Kansas Blue Shield be authorized to participate in the National Senior Citizen Program.

RESOLUTION NO. 9

Blue Shield Tri-Level Service Benefit Program for National Accounts

WHEREAS, it is the belief of the Kansas Medical Society Committee on Blue Shield Relations that the continued welfare of Blue Shield is in the best interest of the Medical Profession and the public, and

WHEREAS, it is the desire of the Kansas Medical Society to assist Blue Shield whenever possible in maintaining and strengthening its position as the leader in voluntary prepayment of medical care costs, and

WHEREAS, Blue Shield's present position in regard to securing national accounts is limited by the absence

of a structure of nation-wide service agreements, and

WHEREAS, Blue Shield would be better able to secure national accounts and thus provide service to Kansas employees if it were possible to institute uniform service benefit agreements in the various states, and

WHEREAS, the strengthening of Blue Shield over the nation would be the effect of realizing such a goal, and

WHEREAS, the Kansas Medical Society Committee on Blue Shield Relations recommends approval of this plan, therefore

Be It Resolved, that the House of Delegates approve in principle the Blue Shield Service Benefit Program for National Accounts based on annual family income levels of \$4,000, and an indemnity program in any desired amount, and

Be It Further Resolved, that the Committee on Fee Schedules be authorized to negotiate with Kansas Blue Shield appropriate schedules of payment for each of the income levels; and

Be It Further Resolved, that if a satisfactory agreement is reached between Kansas Blue Shield and the Committee on Fee Schedules, Kansas Blue Shield be authorized to participate in National Accounts.

RESOLUTION NO. 13

Fee Schedules

WHEREAS, Kansas has approved a relative value scale, and

WHEREAS, there has now been developed a national nomenclature and identifying system, therefore

Be It Resolved, that the House of Delegates authorize this Committee to prepare a third revision of the Kansas Relative Value Scale applying the national nomenclature to relationships applicable to the practice of medicine in Kansas, and

Be It Further Resolved, that the Fee Schedule Committee is authorized to investigate with Kansas Blue Shield the possibility of converting Blue Shield fee schedules to such document.

RESOLUTION NO. 40

Radiology

WHEREAS, radiology is a specialty of the practice of medicine as determined by the A.M.A., the Kansas Medical Society, and other state medical societies, and,

WHEREAS, the proper care of the patient does not necessarily require hospitalization, and,

WHEREAS, there should be no coercion of the patient to enter a hospital when this is not necessary, and,

WHEREAS, such coercion may abrogate the patient's free choice of physician, therefore

Be It Resolved, that all Blue Shield and Blue Cross

plans which have radiology benefits be urged to cover diagnostic and therapeutic radiology in the physician's office as well as in the hospital; and

Be It Further Resolved, that the delegates of the Kansas Medical Society be instructed to submit the above resolution at the next meeting of the House of Delegates of the American Medical Association.

RESOLUTION NO. 41

Pathology

WHEREAS, pathology is a speciality of the practice of medicine as determined by the A.M.A., the Kansas Medical Society, and other state medical societies, and,

WHEREAS, the proper care of the patient does not necessarily require hospitalization, and,

WHEREAS, there should be no coercion of the patient to enter a hospital when this is not necessary, and,

WHEREAS, such coercion may abrogate the patient's free choice of physician, therefore

Be It Resolved, that all Blue Shield and Blue Cross plans which have laboratory benefits be urged to cover these in the physician's office as well as in the hospital; and

Be It Further Resolved, that the delegates of the Kansas Medical Society be instructed to submit the above resolution at the next meeting of the House of Delegates of the American Medical Association.

RESOLUTION NO. 56

Anesthesia

WHEREAS, anesthesia is a specialty of the practice of medicine as determined by the American Medical Association, the Kansas Medical Society and other state medical societies, and

WHEREAS, the proper care of the patient does not necessarily require hospital employed anesthetists, and

WHEREAS, there should be no coercion of the patient to utilize a hospital employed anesthetist when this is not necessary, and

WHEREAS, such coercion may abrogate the patient's free choice of physician, therefore

Be It Resolved, that all Blue Shield and Blue Cross plans which have anesthesia benefits cover these for physicians who are not employed by the hospital as well as those who are, and

Be It Further Resolved, that the delegates of the Kansas Medical Society be instructed to submit the above resolution at the next meeting of the House of Delegates of the American Medical Association.

RESOLUTION NO. 10

Cancer Progress Year 1962

WHEREAS, 1962 marks the twenty-fifth anniversary of the enactment by Congress of the National Cancer

Institute Act which created the National Cancer Institute, and

WHEREAS, the fight against cancer has progressed remarkably since 1937 in the research laboratory, the hospital, the physician's office, and the public's attitude, and

WHEREAS, the 87th Congress designated 1962 as "Cancer Progress Year" in recognition of the tremendous gains made in cancer research and cure, therefore

Be It Resolved, that the Kansas Medical Society join with the National Cancer Institute in celebrating twenty-five years of the attack against cancer during the year 1962, which shall be called "Cancer Progress Year."

RESOLUTION NO. 25

Committee on Postgraduate Study

WHEREAS, the individual earnings of the members of the medical profession are sufficient to provide the funds for their own postgraduate study, and

WHEREAS, the public in even this indirect method should not assume the subsidization of our postgraduate study, and

WHEREAS, unsubsidized teaching is more apt to be unbiased, therefore

Be It Resolved, that the use for formal teaching programs of funds contributed directly by businesses whose profits derive from professional services be considered a questionable ethical practice, when the source of the funds is identifiable by the profession, by the public or by those immediately responsible for the conduct of the program.

RESOLUTION NO. 11

Kansas Coordinating Council for Handicapped Children

WHEREAS, the 1962 budget session of the Kansas Legislature passed a concurrent resolution directing the Kansas Legislative Council to make a study for the purpose of determining the advisability of the enactment of legislation which would provide for the creation of a council for the purpose of coordinating programs for handicapped children, and

WHEREAS, House Concurrent Resolution No. 21 is worded as follows:

"Whereas, many different public and private agencies are engaged in various programs for handicapped children, including rehabilitation, education, treatment, employment and promotion of the general welfare of handicapped children, and

"Whereas, in 1957 the legislature created a coordinating council for the blind which has proved to very useful and helpful in coordinating various programs for the blind, and

"Whereas, it is thought by many persons that

a similar coordinating council for handicapped children could also be useful and of great benefit in promoting and coordinating programs for handicapped children, now, therefore

"Be It Resolved By The House of Representatives of the State of Kansas, The Senate Concurring Therein, that the Kansas Legislative Council be directed to make a study of the various programs in Kansas for handicapped children for the purpose of determining the advisability of the enactment of legislation which would provide for the creation of a Kansas Coordinating Council for handicapped children and to make a report of its study and findings together with such recommendations as it shall see fit to adopt to the 1963 regular session of the legislature, and

"Be It Further Resolved, that the Secretary of State be directed to transmit a copy of this resolution to the chairman and to the secretary of the Kansas Legislative Council," and

WHEREAS, this resolution is currently under study by the Public Health and Welfare Committee of the Legislative Research Council, and

WHEREAS, the Committee on Child Welfare and the Committee on Conservation of Hearing and Speech were invited to appear before the Public Health and Welfare Committee of the Kansas Legislative Research Council and have in fact testified before that committee in favor of creating a coordinating council for coordinating programs for handicapped children, and

WHEREAS, the Public Health and Welfare Committee has requested these two committees of the Kansas Medical Society to further assist in suggesting the composition and organization of such a council, therefore

Be It Resolved, that the House of Delegates authorize the Committee on Child Welfare and the Committee on Conservation of Hearing and Speech to cooperate with the Public Health and Welfare Committee of the Legislative Research Council in further studying House Concurrent Resolution No. 21 in order that this resolution may be ultimately presented to the 1963 Legislature for action.

RESOLUTION NO. 14

History Award

WHEREAS, tremendous progress has in the past and is now being made in the field of medicine, it is important to remember the members of the medical profession who through the years have provided a solid foundation for this progress, and

WHEREAS, it is important that a record of the accomplishments of Kansas physicians be kept for future generations, therefore

Be It Resolved, that the House of Delegates author-

ize an award similar to the Don Carlos Guffey Award, to be known as the Kansas Medical Society Prizes in History of Medicine and to be initiated in cooperation with the Kansas University Medical Center, and

Be It Further Resolved, that the Kansas Medical Society Award would be offered for the three best papers written about a Kansas physician or a member of the University of Kansas School of Medicine faculty—the first prize to be \$100.00; the second prize—\$50.00 and the third prize—two volumes of Major's "A History of Medicine," and

Be It Further Resolved, that the contest be open to high school and college students enrolled in Kansas; that papers submitted would be original typewritten copy, double spaced and submitted each year before March 31, and

Be It Further Resolved, that the contest would be under the direction of the University of Kansas School of Medicine Library of the History of Medicine—(the papers to be judged by the History Committee of the Kansas Medical Society).

RESOLUTION NO. 15

Voluntary Council on Standards for Hospitals

WHEREAS, the House of Delegates previously endorsed the idea and the language of a Voluntary Council on Standards for Hospitals (as these pertain to professional services), and

WHEREAS, the Kansas Hospital Association subsequently prepared standards for hospitals as they pertain to the responsibility of the administrator, and

WHEREAS, in joint meetings with the Hospital Association slight language changes without materially affecting its substance have been made in the language of standards for professional services, therefore

Be It Resolved, that this program be implemented at its earliest possible moment by the appointment of physicians to the Voluntary Council on Standards for Hospitals.

RESOLUTION NO. 16

Fee Schedule for Workmen's Compensation Manual

WHEREAS, the Director of the Kansas State Workmen's Compensation Commission is at present in the process of revising the Workmen's Compensation manual for publication in September, 1962, and

WHEREAS, the Kansas Medical Society has been invited to present a revised fee schedule for medical procedures under the Workmen's Compensation Law, and

WHEREAS, the Director of Workmen's Compensation would like to have the recommendations of the Kansas Medical Society no later than May 31, 1962, therefore

Be It Resolved, that the House of Delegates author-

ize the Committee on Industrial Medicine to prepare and present a revised fee schedule as accepted and authorized by the House of Delegates for the consideration of the Kansas Commission on Workmen's Compensation.

RESOLUTION NO. 17

Recognition of Accomplishments

WHEREAS, The Kansas Medical Assistants Society in cooperation with the Committee on Medical Assistants of The Kansas Medical Society and the Kansas University Extension has developed through its own initiative a series of Medical Assistants circuit courses, three of which were held in 1962 in Wichita, Hays, and Parsons, and

WHEREAS, these courses were attended by approximately 150 Kansas Medical Assistants, and

WHEREAS, the material presented at these two day circuit course workshops was of a very comprehensive nature designed to help the Medical Assistant to be a more effective assistant to the Kansas physician, and

WHEREAS, an educational program of this nature enables participating Medical Assistants to help Kansas physicians to provide the finest medical care for the people of Kansas, therefore

Be It Resolved, that the House of Delegates takes this opportunity to recognize and congratulate the Kansas Medical Assistants Society on their efforts to provide a continuous professional education program for its membership, and

Be It Further Resolved, that the Kansas Medical Society wholeheartedly supports and endorses the professional education program of The Kansas Medical Assistants Society.

RESOLUTION NO. 18

Health Insurance Council Claim Forms

WHEREAS, the American Medical Association and the Health Insurance Council of America have cooperated in developing certain insurance claim forms for use by physicians in answering insurance company requests for information, and

WHEREAS, the Health Insurance Council of America reports excellent reception of these forms in those states where state medical societies have reviewed these forms, and

WHEREAS, it is hoped that the use of these particular forms will cause all insurance companies to accept a standardized form of this type whether or not the company is a member of the Health Insurance Council, and

WHEREAS, these forms will enable office personnel to become familiar with a standard form, therefore

Be It Resolved, that the House of Delegates approve those Health Insurance Council insurance claim forms for use in the State of Kansas.

RESOLUTION NO. 19

Professional Associations

WHEREAS, in the 1962 Budget Session of the Kansas State Legislature, Senate Resolution No. 27 was submitted by Senator William B. Ryan, and

WHEREAS, Senator Ryan's resolution was referred to the Judiciary Committee of the Kansas Legislative Research Council for further study, and

WHEREAS, there are a number of definite advantages to those persons qualifying to perform a professional association similar to those benefits enjoyed by corporations, and

WHEREAS, the Kansas Bar Association, the Kansas State Chamber of Commerce, and other professional groups are interested in studying the possibilities and ramifications of such legislation, therefore

Be It Resolved, that the House of Delegates authorize the Committee on Medical Economics and the Committee on Relations With the Bar Association to study the merits, advantages, and disadvantages of legislation which would allow professional associations and to cooperate with other professional groups also interested in this legislation, and

Be It Further Resolved, that the findings of these committees be reported to the Council of the Kansas Medical Society for approval prior to the 1963 legislative session.

RESOLUTION NO. 20

Conference on Mental Health

WHEREAS, the American Medical Association is now in the process of planning for the first National Congress on Mental Illness and Health to be held in Chicago on October 4, 5 and 6, 1962, and

WHEREAS, participating personnel at this Congress will be physicians from all disciplines, nurses, social workers, psychologists, educators, social scientists, clergy, legislators, judges, attorneys, science writers, research workers, American Medical Association Woman's Auxiliary, other voluntary groups and state and federal agencies, and

WHEREAS, this is the first National Congress on Mental Illness and Health to be sponsored by the American Medical Association, therefore

Be It Resolved, that the House of Delegates authorize the president of the Kansas Medical Society and the chairman of the Committee on Mental Health to attend, and

Be It Further Resolved, that the House of Delegates endorse and encourage the attendance of as many Kansas physicians as possible.

RESOLUTION NO. 21

Coroner's Law

WHEREAS, the Kansas Medical Society has always had an interest in obtaining the most effective type of

Coroner's System and Law in the State of Kansas, and

WHEREAS, the Kansas Medical Society has in the past extended considerable effort to improve and revise imperfections in the present State Coroner's Law, and

WHEREAS, the present Coroner's Law remains in dire need of drastic revision, therefore

Be It Resolved, that the Committee on Pathology and the Committee on Relations With the Bar be authorized by the House of Delegates to further study the State Coroner's System in cooperation with all other interested professional groups, and further

Be It Resolved that these committees be instructed to present any proposals for change in this law for Council approval prior to the 1963 legislative session.

RESOLUTION NO. 22

Cytology Program

WHEREAS, in November 1961 a total of 2,300 plus "Pap" kits and brochures were mailed to physicians and osteopaths in Kansas, as well as to each of the fifty state health departments and territories in the United States, and

WHEREAS, the Kansas Division of the American Cancer Society reports 46 counties in the State of Kansas conducted programs for the early detection of cancer of the uterus and cervix, and

WHEREAS, during 1960 a survey was made of eight private laboratories in Kansas where it was found that these laboratories had performed 25,800 "Pap" smears out of a total female population in Kansas of 1,097,234 and during the first quarter following the distribution of the Cytology Kits and brochures, informal inquiry revealed that most laboratories had approximately doubled the number of "Pap" smears being performed, and

WHEREAS, the University of Kansas Medical Center has, since the mailing of these kits, accomplished or is in the process of accomplishing the following items:

No. 1. Two classes of medical students (201) instructed in the physical diagnosis of cancer, pelvic examination, technique of "Pap" smear, endometrial biopsy and cervical biopsy.

No. 2. Circuit course dealing with this subject reaching 320 physicians.

No. 3. Eleven lectures on this subject before county medical societies.

No. 4. Three practicing physicians have attended classes in diagnosis of cancer, "Pap" smear technique of endometrial and cervical biopsy.

No. 5. Two of the residents have decided to stay in the academic field as the result of this program, and

WHEREAS, inquiry has been received from three

states regarding permission to re-publish the "Pap" brochure for distribution to physicians in their states, and

WHEREAS, the Director of the Division of Health of the Aging, of the Kansas State Board of Health, has been requested to discuss the cytology program, "Pap" kit and brochure before the Middle States Public Health Association in Minnesota on June 6-8, 1962, and

WHEREAS, inquiry from private physicians has revealed over-all general acceptance of this program with no outstanding criticism to date, and

WHEREAS, the evaluation of the effectiveness of this program can only be obtained by receiving reports from the private laboratories of Kansas, statistical data for the year 1962 as to the number of "Pap" smears performed and number of positives proven by histopathological diagnosis, therefore

Be It Resolved, that the House of Delegates recommend that private laboratories be informed of the need for such statistical data with the method of reporting such data to be cooperatively established by individual laboratories and the Division of Health of the Aging of the Kansas State Board of Health.

RESOLUTION NO. 24

Committee on Postgraduate Study

WHEREAS, medical research is conducted almost exclusively by non-profit organizations, and

WHEREAS, the public eventually reaps the advantage flowing from medical research, and

WHEREAS, the public at present and historically has subsidized medical research,

Be It Resolved, that non-profit medical research organizations may accept funds for research purposes contributed by businesses whose profits derive from professional services without question of ethical taint providing the project is carried on with scientific freedom: free of bias, partiality, interference, correction or dictation on the part of the donor; and providing that the results of the research project will become common knowledge.

RESOLUTION NO. 26

Speakers' Bureau

WHEREAS, there is urgent need for a greater public understanding of medicine, its economic and its scientific aspects, and

WHEREAS, the public has exhibited a strong interest in such information, and

WHEREAS, this information can best be given by the profession itself, therefore

Be It Resolved, that it be recommended to each county medical society that they organize an active Speakers' Bureau, and

Be It Further Resolved, that it be recommended

that medical society announce to the various organizations of the county the availability of speakers on medical subjects.

RESOLUTION NO. 27

Public Relations Conference

WHEREAS, the Committee on Public Relations conducted a conference for representatives of each county medical society on Sunday September 17, 1961 at Emporia, and

WHEREAS, this meeting was considered to be instructive, therefore

Be It Resolved, that the Committee on Public Relations be requested to annually conduct a Public Relations Conference to which will be invited representatives from all county medical societies.

RESOLUTION NO. 28

Joint Meetings of County Bar Associations and Medical Societies

WHEREAS, the good relationships between the legal and the medical professions at the county level are of increasing importance, therefore

Be It Resolved, that it be recommended to each component society in Kansas to conduct at least one joint meeting annually at which time formal program on the subject of legal medicine be presented, and

Be It Further Resolved, that if the above is done then one subject to be presented at the 1962 joint meeting be on the topic of the impartial medical witness and that other possible topics include medical reporting, testimony in the court, malpractice, disability rating.

RESOLUTION NO. 29

Impartial Medical Witness

WHEREAS, the courts in Kansas as elsewhere are heavily crowded with personal injury cases, and

WHEREAS, the courts in some states are experimenting with the appointment of an impartial medical witness to aid in the settlement of such cases on a pre-trial basis, and

WHEREAS, a Kansas Federal judge expressed his desire to experiment with this procedure in his court whereby he will select from a list of names submitted by the Kansas Medical Society, and

WHEREAS, this proposal has the tentative approval of the joint committee of attorneys and physicians, therefore

Be It Resolved, that the Council of the Kansas Medical Society submit a list of names from which may be selected impartial medical witnesses to any judge of a Federal or District court in Kansas if such request is made, provided that no physician's name will be included without his specific approval.

RESOLUTION NO. 30

Health Education in the Schools

WHEREAS, health education is becoming a subject of increasing interest and importance to the public schools of Kansas, and

WHEREAS, the practicing physician is one of the persons best informed upon the subject of health education, therefore

Be It Resolved, that it be recommended to the component societies of Kansas Medical Society to offer to public schools within their jurisdiction the services of their membership in an advisory capacity.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Larry D. Ball, M.D.
116 E. Kansas Street
Medicine Lodge, Kansas

F. W. Blancke, M.D.
3320 Burlingame Road
Topeka, Kansas

L. V. Borgendale, M.D.
122 W. 8th Street
Junction City, Kansas

Avis P. Bray, M.D.
Gelvin-Haughey Clinic
Concordia, Kansas

John P. Brockhouse, M.D.
801 Mechanic
Emporia, Kansas

Robert F. Cavitt, M.D.
10907 W. 63rd Street
Shawnee Mission, Kansas

Quentin Cramer, M.D.
6100 Martway Drive
Shawnee Mission, Kansas

Kale C. Gentry, M.D.
7928 Marty
Overland Park, Kansas

C. A. Hellwig, M.D.
Hertzler Clinic
Halstead, Kansas

Paul D. Hess, M.D.
7501 Mission Road
Shawnee Mission, Kansas

Tomiharu Hiratzka, M.D.
Wesley Hospital
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Overland Park, Kansas

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Medicine Lodge, Kansas

John W. Travis, M.D.
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10th & Horne
Topeka, Kansas



Editorial COMMENT

EDITOR'S NOTE: *On Sunday, May 20, 1962, the President of the United States in a nationally televised program appealed to the people to support his program for health care of the aged. On Monday, May 21, the American Medical Association purchased time on a nationwide television network for a reply to comments made by the President. On Tuesday, May 22, Norton L. Francis, M.D., president of the Kansas Medical Society, issued the following press release to the newspapers, radio and television stations of Kansas.*

"The doctors of Kansas have an obligation to assure the senior citizens and all persons in this state adequate health care."

N. L. Francis, M.D., of Wichita, president of the Kansas Medical Society, made this statement today in reply to a nationwide television appeal by the President of the United States for his MEDICARE program.

"We recognize the high cost of hospital, nursing, drug and medical services," Doctor Francis said. "We have long advocated programs to aid in protecting individuals from the hazards of long term illness. Of course, the broadest health coverage at the greatest economy is the program of choice. We believe this can be achieved within the free enterprise system. Compulsion is not appropriate in the individual situation of health care. Nor is it necessary. Socialized medicine is not good medical care for anybody. Even though the President denies his program to be socialized medicine, those elements are there, as everyone must recognize.

"The president's aim is to pay, under a compulsory system of taxation, some of the health care costs for persons over 65 years of age, regardless of their need, if they hold a social security number. It gives no thought to those without a social security number, no matter what their needs may be. Therefore, whether you choose to call it socialized medicine or whatever else, it is compulsory, because it involves taxation; it

is wasteful because benefits have no regard for need, and it is discriminatory.

"As physicians, our responsibility is to care for the sick. We are not experts in political science. It does not, however, seem so very difficult to understand, this must somehow be paid for. We must realize that further increases in social security or other taxes will be passed on to the consumer by increasing the retail cost of every commodity on the market. And, as is known, the immediate benefactors under the President's program will, for the most part, pay nothing further into social security, so the visible tax will be borne by the young people. It is another example of spending today the earnings of a future generation. And this is not fair, nor is it in keeping with the American concept of democracy.

"The Kansas Medical Society believes there are other ways of accomplishing what the President of the United States says he wants. We think the Kerr-Mills law should be implemented in Kansas. Under this program, those who need help in defraying the cost of illness can have it. We think the proposal to give tax credit for premiums paid on health insurance to be an excellent idea. We believe every person, regardless of age, should be given the opportunity to purchase insurance to cover the cost of extended illness. We think there should be a variety of plans from which the individual may select the one best suited to his needs.

"The doctors of Kansas will continue to assist in developing programs to relieve people from worry over the cost of illness. Where an individual is not able to provide this for himself (as can quickly happen in a catastrophic illness or accident), after other resources have been utilized, government has a responsibility. Then the Kerr-Mills law can be used. We want whatever program is adopted to be fair to everyone.

"It is interesting to consider the dual personality of our government with regard to the means test. This

becomes a valid principle in taxation. When the money is taken from the individual each pays according to his ability or his means. It is strange, however, that when the citizens' tax money is disbursed, the means test is looked upon with disfavor. Such has been the reasoning, it appears to us, in some of this nation's foreign aid projects, and is again a major point of argument in the President's proposed program for the senior citizens' health care."

Committee Appointments

Elsewhere in this issue of the JOURNAL may be found a list of the committee appointments for 1962-63. It will immediately be apparent that most committees have increased in size. This was occasioned by the remarkable response from the members of this Society when invited to express their preference.

Doctor Francis, President, has given exceptional care to his committee selections. He has personally studied each of the 600 replies received. He did his utmost to appoint every member on the committee requested. The only exceptions occurred in circumstances where a great many requests were received for one committee and where geographical distribution of committee appointments appeared necessary. Except for these considerations, the individual requests were honored.

Doctor Francis is now asking committee chairmen to consider the creation of subcommittees for the development of individual projects. It is his plan that subcommittees will meet frequently and the entire committee as a unit will meet perhaps only once during the year. In this way committee effort will be expanded without additional cost to committee members or to the Society.

It is urgently hoped each member appointed to a committee will give his Society the benefit of his thinking toward the end that the coming year will represent much progress in the field of public service.

CANCER MATERIAL AVAILABLE

The following booklets are available without charge for the use of the physician for his patient. These may be obtained from the American Cancer Society, Inc. Reports from many Kansas physicians who use them indicate that these materials are of considerable value to them in their practice.

1. "Care of Your Colostomy"—outlines many helpful hints and suggestions the colostomy patient can use in adjusting to a colostomy.

2. "Help Yourself to Recovery"—for the mastectomy patient; suggests prosthetic aids and describes rehabilitative exercises.

3. "Rehabilitating Laryngectomees"—"Your New Voice"

4. "Site" Pamphlets—principal use is to support the physician's comments to the patient or his family. These are entitled:

A. "Cancer of the Skin"

B. "Cancer of the Mouth and Respiratory tract"

C. "Cancer of the Genito-Urinary Tract"

D. "Cancer of the Breast"

E. "Cancer of the Female Generative Organs"

F. "Cancer of the Digestive Tract"

The booklets listed above can be obtained from the local County Unit of the American Cancer Society.

The following materials are available only from Kansas Division headquarters of the American Cancer Society, 824 Tyler, Topeka, Kansas:

1. Monograph Series for Physicians:

A. Cancer of the Breast

B. Cancer of the Colon and Rectum

C. Cancer of the Esophagus and Stomach

D. Cancer of the Female Genital Tract

E. Cancer of the Lung

F. Oral Cancer

G. Cancer of the Thyroid

H. Diagnosis of Genitourinary Neoplasms

2. "Sarcomas of the Soft Tissues"—Arthur Purdy Stout, M.D.

3. "Cancer of the Pancreas, Biliary Tract and Liver"—Departments of Medicine & Radiology, University of Chicago

4. "Cancer Prognosis Manual"

5. "Cancer Detection in the Physician's Office"

6. "Examination of the Colon and Rectum"

7. "You and Cancer Diagnosis of the Female Genital Tract"

The following reprints are also available to any physician upon request to the Division headquarters:

1. "Adaptation of Mothers to the Threatened Loss of Their Children Through Leukemia: Parts I & II" (CANCER, reprint)

2. "Adaptation of the Spouse and Other Family Members to the Colostomy Patient" (CANCER, reprint)

3. "Adaptation to Radical Mastectomy" (CANCER, reprint)

4. "Adaptation to the Dry Colostomy: Preliminary Report and Summary Findings" (CANCER, reprint)

5. "Emotional Response to Tumors of the Breast" (Journal of the South Carolina Medical Association, reprint)

6. "Exfoliative Cytology" (Booklet) ("CA—A Journal for Clinicians," reprint)

7. "Progress Against Cancer Quackery" (Journal of the American Medical Association, reprint)



Blue Shield

Blue Shield Board

A prominent Western Kansas physician, Dr. E. Burke Scagnelli, of Dodge City, has been elected President of the Kansas Blue Shield Board of Trustees. The election took place at the annual meeting of the Board at the Town House Hotel in Kansas City, Sunday, April 29.

The meeting of the Blue Shield Board is held each year on the Sunday preceding the opening of the Kansas Medical Society annual meeting.

The President and President-Elect of the Kansas Medical Society serve as ex-officio members of the Blue Shield Board, and were in attendance at the April 29 meeting.

Dr. Scagnelli, who succeeds Dr. James B. Fisher, Wichita, has been a member of the Blue Shield Board since May, 1955. He was elected Secretary-Treasurer in 1957, and since 1958 has served as a Vice-President on the Board.

He was graduated from the University of Loyola School of Medicine in Chicago. He came to Kansas in 1946, where he first began the practice of his profession in Jetmore, just 50 miles from Dodge City. He moved to Dodge City in 1952, where he has been prominent in medical circles, and is a Past President of the Ford County Medical Society.

Other officers elected at the April 29 meeting included Dr. Robert K. Purves, Wichita, 1st Vice-President; Dr. Charles S. Joss, Topeka, 2nd Vice-Presi-

dent; and Dr. James L. McGovern, Wellington, Secretary-Treasurer.

Re-elected Trustees to the Blue Shield Board are Dr. Thomas G. Duckett, Hiawatha; Dr. David G. Laury, Ottawa; Dr. R. K. Wallace, Manhattan; Dr. C. M. Lessenden, Jr., Topeka; Dr. L. S. Nelson, Jr., Salina; Dr. Norman Hull, Hays; and Dr. Anol Beahm, Great Bend.

Herman Andres, Newton, who for many years was President of Kansas Blue Cross, retiring two years ago, was elected as the member representative to the Blue Shield Board. Other member representatives on the Blue Shield Board are Mrs. J. C. McKinney, Hartford; J. D. Smerchek, Manhattan; and Stanley Winchester, Hutchinson.

E. W. Johnson, Olathe, and Charles F. Bredahl, Fairview, are the public representatives on the Blue Shield Board of Trustees, appointed by the Governor of Kansas.



E. Burke Scagnelli, M.D.

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Personalities—IN KANSAS MEDICINE

A free diagnostic clinic for crippled children was held at Garden City in May. Examinations were conducted by **H. O. Anderson**, **John F. Lance**, and **Norman K. Pullman**, all of Wichita, and **John B. Jarrott**, Hutchinson.

Monte Miller, who has been associated with the Medical Center Clinic in Garnett, will leave in June to take a residency in internal medicine at the Lackland Air Force Base hospital, San Antonio, Texas.

The minimum standards that should be used to determine qualifications necessary for safe driving were discussed by **George R. Maser**, Mission, at the state meeting of the Kansas Citizens Safety Council. The meeting was held in Topeka in April.

More than 3,000 physicians were registered for the four day meeting of the American Academy of General Practice in Las Vegas. Among those attending from Kansas were **L. G. Graves**, St. John, **George E. Burket, Jr.**, Kingman, and **W. F. Werner**, Tribune.

An open meeting on mental health, sponsored by the Wichita-Sedgwick County Association for Mental Health was held in May. **Richard L. Meadows** of the State Department of Social Welfare discussed the developing program of state mental hospitals in Kansas.

R. Dale Dickson, Topeka, was elected first vice president of the American College of Allergists at the annual convention in Minneapolis, Minnesota, in April. Dr. Dickson served as chairman of one of the

scientific sessions and was a speaker on a panel at the convention.

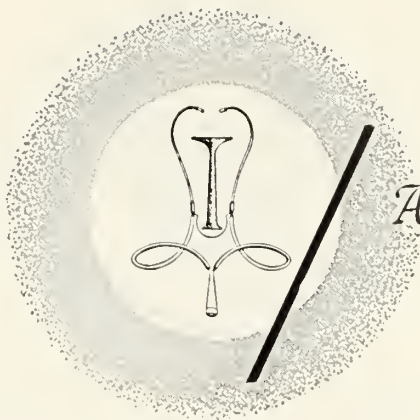
Another Kansas physician who participated in the program was **Ralph Hale**, Wichita, who read a paper on "Origin of House Dust Allergen." The paper was prepared jointly with **Leo P. Cawley**, associate director of laboratory at Wesley Hospital, Wichita.

Charles F. Haughey, Salina, is the new president of the Kansas Public Health Association. He was elected during the association's convention in Topeka in April.

A two-day educational workshop sponsored by the Kansas Chapter of the American Physical Therapy Association was held recently at the St. Joseph Hospital and Rehabilitation Center, Wichita. **H. O. Marsh**, **Norman Pullman**, **J. W. Graves**, and **Anita Isaac**, all of Wichita, lectured and presented cases to the association during the meeting.

H. W. Brooks, Wichita, will begin volunteer work in India sometime in June. Dr. Brooks, sponsored by the Ecumenical Mission and Relations Committee of the United Presbyterian Church in the United States, will serve one year at the Christian Medical College and Hospital of Vellore, India. He will help in the training of a number of surgeons and will help to build up their Department of Plastic and Reconstructive Surgery.

Colvin Agnew, assistant professor of radiology, K.U. School of Medicine, recently participated in a symposium on "Technological Needs for Reduction of Patient Exposure from Diagnostic Radiology." The symposium was sponsored by the X-Ray Research Laboratory, Division of Radiological Health, HEW Department, Washington, D. C.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

A Postgraduate Course on Rheumatic Diseases will be held June 23 and 24 at the Edgewater Beach Hotel, Chicago. This course is sponsored by the Chicago Rheumatism Society, the American Rheumatism Association and the Illinois Chapter of the Arthritis and Rheumatism Foundation. The course will be acceptable for ten hours of category two credit by the American Academy of General Practice. Registration fee is \$20. For more information write: Seminar Committee, Illinois Chapter Arthritis and Rheumatism Foundation, 1020 North Rush Street, Chicago 11, Illinois.

The American Medical Women's Association has extended an invitation to all women physicians attending the A.M.A. annual meeting in Chicago to be their guests at a brunch on Sunday, June 24, at 11:00 a.m., at the Essex Inn. "Medical Woman Power—Can It Be Used More Efficiently" will be discussed by a panel with audience participation. Contact the American Medical Women's Association, 1790 Broadway, New York 19, New York, before June 22.

Southwestern Medicine is offering awards for the best papers published in that journal, the contest being in Regional and National classifications and running until September 1, 1962. All physicians who practice in West Texas, Arizona, New Mexico, Nevada or Northern Mexico (States of Sonora and Chihuahua) will be eligible to compete for the Regional Awards. All physicians in the United States outside the Regional area may compete for the National Awards.

Readers interested in further details should write to: Lester C. Feener, M.D., Editor, 310 North Stanton Street, El Paso, Texas.

The American College of Chest Physicians will hold its five-day annual meeting at the Morrison Hotel, Chicago, June 21-25.

The scientific program will include postgraduate seminars, open forums, a cine symposium, round table luncheon sessions, and motion pictures and will cover such topics as Tuberculosis, Underwater Physiology, Chest Roentgenology, Cardiopulmonary Trauma, Histoplasmosis, Congenital Heart Disease, and Cardiac Surgery.

The annual Presidents' Banquet, at which the College Gold Medal will be awarded to a physician for meritorious achievement in chest diseases, will be held Sunday, June 24.

On Monday, June 25, there will be a joint meeting between the American College of Chest Physicians and the American Medical Association at McCormick Place. This program will include, in addition to the regular scientific sessions, six Round Table Luncheon sessions and will deal with such topics as Surgical Treatment of Acquired Cardiovascular Diseases, Special Problems in Diseases of the Chest, and Inhalation Therapy.

The popular Fireside Conferences, again part of the joint meeting with the A.M.A., will be at the Morrison Hotel. Topics included in the thirty round table sessions are: Bronchial Carcinoma, Bronchitis and Pneumonitis, Emphysema, Cardiac Surgery, Myocardial Infarction, and The Smoking Controversy.

For additional information, write Mr. Murray Kornfeld, Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11.

The 16th Annual Rocky Mountain Cancer Conference will be held at Brown Palace West Hotel, Denver, July 13-14, and will feature panel discussions
(Continued on page 271)

From the Stacks

State Medical Library

MRS. BLENDENA EVANS, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

RECENT ACQUISITIONS

- Am. Nurses Assn. Facts about nursing. Am. Nurses. 1961.
A.M.A. Council on Drugs. New & nonofficial drugs. Lippincott. 1962.
McKusick, V. Medical genetics. 1958-1960. C. V. Mosby. 1961.
Peele, T. I. The Neuroanatomic basis for clinical neurology. McGraw-Hill. 1961.
Rodahl, K. Muscle as a tissue. McGraw-Hill. 1961.
Root, K. The medical secretary. McGraw-Hill. 1960.
Scott, W. Year book of urology. Yr. Book Co. 1962.
Somers, H. Doctors, patients & health insurance. Brookings Institute. 1961.
Tucker, W. E. Home treatment in injury & osteoarthritis. Williams & Wilkins. 1961.
Von Euler, U. Shock—pathogenesis and therapy. Springer Verlag. 1962.

MONOGRAPHS AVAILABLE IN THE LIBRARY

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- Ames, L. Rorschach responses in old age. Hoeber-Harper. 1954.
Arthur, J. K. How to help older people. Lippincott. 1954.
Bernadette de Lourdes. Where somebody cares. Putnam. 1959.
Bettag, Otto L. The aged and aging in Illinois. 1955.
Birren, J. E. Handbook of aging and the individual. Univ. of Chicago Press. 1960.
Burgess, E. W. Aging in Western societies. Univ. of Chicago Press. 1960.
Ciba Foundation. Colloquia on aging. Little, Brown. 1955. 5 volumes.
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Water and electrolyte metabolism in relation to age and sex.
Cowdry, E. V. Problems of aging. Williams & Wilkins. 1952.
Donahue, W. T. Planning the older years. Univ. of Michigan Press. 1950.

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Johnson, W. M. The years after fifty. Whittlesey House. 1947.
Lawton, G. Aging successfully. Columbia Univ. Press. 1946.
Lerrigo, C. H. The better half of your life. J. Day Co. 1951.
Lieb, C. W. Outwitting your years. Prentice-Hall. 1949.
Michigan Univ. Growing in the older years. Univ. of Michigan Press. 1951.
Shock, N. W. A classified bibliography of gerontology and geriatrics. Stanford Univ. Press. 1951.
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Thewlis, M. W. The care of the aged. Mosby. 1954.
U. S. Public Health Service. Illness and health services in an aging population. 1952.

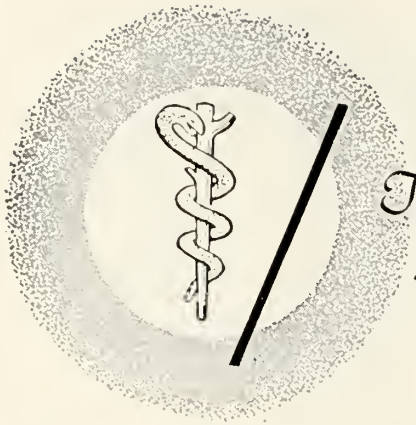
**Books and periodicals will be sent
anywhere in the state. You pay only the
postage, four cents for the first pound
and one cent for each additional pound.**

- U. S. National Institute of Mental Health. Psychological problems of our aging population. 1952.
U. S. Armed Forces Medical Library. Psychopathology of aging, list of references.

Anesthesia

- Adriani, J. Pharmacology of anesthetic drugs. Thomas. 1960.
A.M.A. Council on Pharmacy & Chemistry. Fundamentals of anesthesia. 1954.
Bonica, J. J. Clinical applications of diagnostic and therapeutic nerve blocks. Thomas. 1959.
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Evans, F. T. General anaesthesia. Butterworth. 1959. 2 volumes.
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Guedel, A. E. Inhalation anesthesia. Macmillan. 1951.
Keys, T. History of surgical anesthesia. Schuman's. 1945.
Mead, S. V. Anesthesia in dental surgery. Mosby. 1951.

(Continued on page 271)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

THE CAMEL'S NOSE

Testifying before a congressional committee this week, the president of the American Medical Association described the medical care for aged bill as one which "would force the nation's wage earners to help pay medical expenses for millions of other people who are financially able to care for themselves."

This is probably the best single argument there is for not financing free medical care for the aged through Social Security tax payments.

But an article in a recent issue of the *British Medical Journal* suggests what, in the long run, may be a far more important angle to consider in evaluating the worth of a major medical program financed through government taxes.

In Britain they have gone all the way. The whole medical program is socialized. All medical care is "free" and no man has to worry about a doctor bill.

The citizens like it—so far. Every poll taken shows a majority in favor of continuing the plan. But a subtle change is taking place. Here is what has happened.

In the early years of the National Health Service, young men kept entering medical schools in their accustomed numbers. New doctors were obtaining licenses to practice in their accustomed numbers. All seemed well so far as the supply and quality of doctors was concerned.

Suddenly, however, everybody woke up to the fact that British medical students weren't converting themselves into British doctors. Increasing numbers were going off to Canada, Australia, and the United States. Meanwhile, doctors from India, Africa and other emerging nations came to Britain and found ready posts in hospitals vacated by the British doctors going elsewhere.

So while a statistician might find little change, the

fact is that the British medical situation has changed dramatically. Today more than half of all emergency surgery in Britain is done by non-British-trained doctors. The professional journals are full of criticism of the quality of British medical practice.

"So there is now in Britain a great hullabaloo about what to do to get more able young Englishmen to be English doctors," comments the *Wall Street Journal*. "Yet there are very few so far to ask the simple question: Why should a young English boy want to be an English doctor?"

And that's a good question.

The training for medicine is one of the longest, most arduous and most expensive of any career. The man who goes through it must be deeply motivated not only to make a good living but to enter a profession where he can be his own master and not a hired employee, where he will have the satisfaction of being respected by his community as "the doctor" always has. And where he will be able to render his idea of the best possible medical service to the sick who come to him.

British socialized medicine has taken away every one of those motives.

The young British doctor is paid like a clerk. He is not a professional man but a government employee. He is not his own master even in practicing his own skills. And because his service is "free," he is invariably forced by a crowded waiting room to cut corners and give less time and care to the really sick than he knows he should in order to be a good doctor.

Why should anyone be surprised that the able young British doctors are going elsewhere to practice? And how long will it be before the quality of British medical care deteriorates to a truly critical point?

I am not suggesting that tying U. S. medical care

(Continued on page 271)

Committees for 1962-1963

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ANESTHESIOLOGY

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T. P. Butcher, Emporia, Chairman; H. L. Barry, Wichita; V. E. Brown, Sabetha; J. G. Claypool, Howard; L. G. Glenn, Protection; J. B. Jarrott, Hutchinson; C. M. Lessenden, Jr., Topeka; E. B. Scagnelli, Dodge City; L. E. Vin Zant, Wichita.

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From the Stacks

(Continued from page 265)

Miles-Ames Research Lab. Symposium on sedative & hypnotic drugs. Williams & Wilkins Co. 1945.

Miller, J. G. Pharmacology and clinical usefulness of carisoprodol. Wayne St. Univ. Press. 1959.

Smith, R. M. Anesthesia for infants and children. Mosby. 1959.

Walton, J. H. Control of pain with saddle block and higher spinal anesthesia. Ciba Pharmaceutical Products. 1948.

Walton, R. P. Marihuana. America's new drug problem. Lippincott. 1938.

Wylie, W. D. A practice of anaesthesia. Year Book Pub. 1960.

Announcements

(Continued from page 264)

on "Neoplasms Complicating Pregnancy" and "Carcinoma of the Colon."

The President of the American Cancer Society and the President-elect of the American Medical Association will participate in the two-day program.

Application has been made for A.A.G.P. accreditation for the Conference.

Speakers on the Scientific program will include: Christopher J. Duncan, M.D., of Brookline, Massachusetts; William H. Gordon, M.D., of Lubbock, Texas; George E. Moore, M.D., of Buffalo, New York; and James W. Reagan, M.D., of Cleveland, Ohio.

Morning sessions on both days of the program will be devoted to the panel discussions followed by round table luncheons with speakers. Individual papers will be delivered during the afternoon sessions.

Further information may be obtained by writing Rocky Mountain Cancer Conference, 1809 East 18th Avenue, Denver 18, Colorado.

Kansas Press Looks at Medicine

(Continued from page 266)

for the aged into the Social Security system will present America with problems like this. We will still be a long way from having socialized medicine.

But don't think we won't have taken a step in that direction any time every U. S. citizen over 65 becomes entitled to free medical service paid for by a federal tax.

These are the basic elements of the socialized medicine Britain has—free medical care for the people. Ours would include only those over 65.

But it would be a case of letting the camel put his nose in the tent window. His head would follow. Finally he would walk off with the whole tent, sure as you're born.—*Iola Register*, April 13, 1962.

The mutual relations of the two sexes seem to us to be at least as important as the mutual relations of any two governments in the world.

—T. B. Macaulay

Workers 65 years of age and over lost about 11 days from work compared with 8.4 days for those in the 45-64 year group and 6.3 days for those aged 17-44.



DEVELOPMENT AND STRUCTURE OF THE CARDIOVASCULAR SYSTEM, Edited by Aldo A. Luisada, M.D., McGraw-Hill Book Company, Inc. 1961, 225 pp. plus 12 pp. bibliography and 9 pp. index. \$9.95.

This is indeed a handy up-to-date monograph directly reproduced as a collection of chapters taken from *CARDIOLOGY*, an encyclopedia of the vascular system giving basic information concerning the development, and the gross and finer structures of these parts. It is systematically organized. The embryology is clear and valuable to the heart surgeon. The chapter on changes at birth is helpful to the pediatrician. The structure of the heart (both gross and microscopic) is dealt with very well. The larger vessels are handled admirably. The finer details of the walls of vessels, as well as the patterns of capillaries, enhance the value of this monograph. There is an excellent list of references. The index is complete. Every physician will find this a most useful tool.—*P.G.R.*

COMMON SENSE ABOUT PSYCHO-ANALYSIS, Doubleday & Company, Inc. Rudolph Wittenberg. 1962. 216 pages. \$3.95.

This book is easily read and understood by lay people. It would unquestionably aid the family of a patient, and other closely related persons, in comprehending the problems involved in an analysis, the hurdles the patient has to overcome, thereby possibly facilitating recovery. The author submits many actual cases from his own practice. The following topics were considered of especial interest: Should the analyst be a medical doctor first? The relationship between the analyst and the patient, between the analyst and the patient's family. Analytic therapy for children and youth; Choosing an analyst; Study of dreams, the procedure in an analysis. All of these were explained to the complete satisfaction of the re-

viewer. What is Psychoanalysis, is a difficult question which can most accurately be answered by experiencing analysis oneself. However, the writer gives a clear and comprehensive answer even to this question.

The book touches on one of our most urgent problems today—mental health. We know more about splitting the atom, however, than we know about human psyche. No two people learn alike, no two people create alike, and no two patients in analysis work through their conflicts in exactly comparable ways. The rational healthy parts are observing and coping with the irrational and unconscious parts of the personality. Each of these parts are unique for each individual. It is, therefore, often impossible to predict behavior, to make comparisons, to draw upon past experiences. The job of an analyst is indeed a difficult one. No wonder he may greet his colleague one morning with "You are fine. How am I?"—*V.B.*

CARCINOMA OF THE CERVIX, Graham, Sotto, Paloucek. Saunders, 1962.

This is a very well written and presented monograph on a most important subject. The material reported from three large and well respected clinics lends real authority to the statistics.

The subject is discussed from every standpoint, including Diagnosis, grading and staging of the tumor, treatment both radiation and surgical, with the results and complications of all types of treatment. There is also a chapter on radiation physics which should be especially interesting to physicians who see and treat patients with cervical malignancy, and who have little background in the science of radiation.

This book is well and generously illustrated with photographs, photomicrographs, and drawings.

This book is a welcome addition to the library of anyone who sees women patients.—*N.H.O.*



FRANCIS M. COFFMAN, M.D.

Francis M. Coffman, 84, who was a physician in Ford, Kansas, for 44 years, died in Memphis, Tennessee, on May 4, 1962.

Dr. Coffman was born December 2, 1877, at Beloit. He attended Kansas Wesleyan University at Salina for two years and graduated from the Kansas City College of Medicine in 1910. He began his practice in Ford shortly after receiving his medical degree and practiced there until his retirement.

He was an active member of the Methodist church and took part in community affairs, having served as a member of the board of education for many years.

Dr. Coffman is survived by a son and a daughter.

WILBUR G. GILLETT, M.D.

Wilbur G. Gillett, 70, Wichita physician, died May 8, 1962, in the St. Francis Hospital, Wichita.

Dr. Gillett was born at Kingman, Kansas, on October 11, 1891. He graduated from medical school at the University of Kansas and specialized for two years at Washington University, St. Louis. He also attended the University of Colorado where he specialized in eye surgery.

He served in the Army Medical Corps during World War I and returned to Wichita to establish his practice. He was a member of the First Presbyterian Church and various Masonic orders.

Survivors include his wife and a daughter.

CLARENCE K. VAUGHN, M.D.

Clarence K. Vaughn, 86, died April 16, 1962, at the home of his son in Carmel, California.

Dr. Vaughn was born July 7, 1875 at Leavenworth. He graduated from the Memphis Hospital Medical College in 1898. He returned to Leavenworth to establish his offices and practiced there for 57 years, retiring in 1955.

He was a member of the alumni society of the University of Virginia and an honorary member of the Kansas Medical Society.

He is survived by two sons and several grandchildren.

MARMADUKE D. McCOMAS, SR., M.D.

M. D. McComas, Sr., 77, Courtland, died at the St. Joseph Hospital in Concordia on April 22, 1962.

Born at Westmoreland, Kansas, on January 5, 1885, he attended Kansas Medical College in Topeka and received his degree in medicine from the University of Kansas Medical School in 1911. He practiced medicine for a short time in Fall River and Formoso and moved to Courtland in 1914.

He was a member of all Masonic bodies and a veteran of World War I.

Dr. McComas is survived by his wife, a daughter and a son, Dr. M. D. McComas, Jr., of Concordia.

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Future of Medicine

Pediatrics and Changing Diseases of Children

DANIEL C. DARROW, M.D., *Kansas City**

IN A WEAK MOMENT when Dr. Miller asked me to talk on the future of pediatrics, I consented. A little thought would have revealed that no one can confidently predict the future of any form of medical practice. I have felt for some time that much that is being written about the future of pediatrics is based on a misconception of the past. Stated simply these people seem to follow a simple syllogism: Pediatrics consists of the care of certain prevalent diseases. These diseases are no longer common. Therefore, there will be no pediatrics in the future. Obviously the proposition is false because pediatrics is not a specialty involving certain diseases. Rather it concerns the care of infants and children whatever disease they have and especially the prevention of serious diseases. Perhaps some perspective may be obtained by reviewing what pediatricians have dealt with since 1920.

I shall start a little further back and remind you that medicine underwent an even more radical evolution in the last half of the nineteenth century than in the present one. Cellular pathology opened new

insight into the classification of diseases and permitted the correlation of symptoms with lesions in organs. Bacteriology solved the etiology of many infectious diseases and, incidentally, placed surgery on

Medical advances, particularly in the area of infectious diseases, have profoundly affected the practice of pediatrics. Preventive medicine will exert the strongest influence on the pattern of this specialty in the future.

a sound basis. Pharmacology and physiology became experimental disciplines pursued independently of clinical practice. These tools and the concepts they generated encouraged the study of disease by experimental methods. Medical care rapidly improved with the scientific outlook on disease. The full force of these changes did not fructify until the medical schools also changed. In this country the change in the medical schools is conveniently dated 1910 from the Flexner report.

In Europe and America during the last half of the 19th century, 150 to 200 infants of every 1,000 live

* From Children's Mercy Hospital and Department of Pediatrics, Kansas University School of Medicine, Kansas City, Kansas.

Read before the Southwest Pediatric Society, March 6, 1962.

births died during the first year of life. In some parts of the world the infant death rate, then as now, was 400 to 600. In addition deaths from infectious diseases were high among children. Despite this challenge to medicine, pediatrics could hardly be considered a special form of medical practice until the medical schools recognized the necessity of establishing separate departments for the study of diseases in children and to train men to manage the problems encountered among infants and children.

The first university departments of pediatrics were established in Germany. Heubner may be considered the man who started the movement. At first he took students to see patients in their homes and in small units in houses. The large infant asylums inherited from the middle ages had been so ineffective in the care of young infants that doctors were afraid of institutional care of infants. Later special hospitals for the care of the sick children were built.

Three problems seemed paramount at this time: (1) finding a means of maintaining good nutrition, particularly during the first year; (2) treatment and preventions of the infectious diseases of which the most urgent seemed to be pneumonia, tuberculosis, diphtheria, scarlet fever and streptococcal infections, pertussis and measles; (3) prevention and treatment of diarrhea which was one of the chief causes of death in the first year. Earlier smallpox would have been included, but thanks to Jenner, this was no longer widespread.

It was realized that nutritional disturbances played an important role in the failure to recover from diarrhea and infectious diseases. For this reason pediatrics tackled the problem of infant feeding. This choice was fortunate for it led to fundamental discoveries that could be applied to prevention of disease rather than cure of disease.

Heubner interested the physiologist Rubner in determining the heat balance of infants. Numerous men continued to work in this and related fields. In this country, I need only mention Chittenden, Lusk, Benedict, Fritz Talbot and Levine. They defined the caloric requirements of infants and showed that absorption and utilization of protein, fat and carbohydrate is essentially normal in infants in the absence of diarrhea or certain diseases now grouped as the mal-absorption syndromes. The studies showed that the clinical problem was to find a substitute for human milk that was safe and well tolerated.

When I entered pediatrics in 1920, infant feeding was taught as a complicated subject requiring considerable experience and skill. We know now that in 1920 infant feeding was emerging from a lot of empirical nonsense. At this time, the research of biochemists and physiologists had defined the energy requirements fairly completely. Shortly after 1920

Brennemann, Marriot and Powers, as well as others, provided simple rules for infant feeding, essentially as used today. Infant feeding is no longer complicated. It requires familiarity with the behavior of infants but little special knowledge of food mixtures. Marasmus, the severe form of undernutrition of infants, which used to be a frequent serious problem of artificially fed infants is almost never seen today except as a sociological problem. Thus infant feeding which loomed as a difficult problem of pediatrics in 1920 is really a minor concern.

One might have expected the vitamin deficiencies to persist. Rickets occurred in as many as 50 per cent of the infants in winter. The discovery of vitamin D and the role of ultraviolet light, however, showed how rickets can be prevented. Owing to the addition of this vitamin to milk and preparations given to infants, rickets due to lack of vitamin D practically never develops. Scurvy was still moderately frequent despite the knowledge that citrus fruit cures scurvy. The isolation of ascorbic acid advanced knowledge of scurvy so that it is now rare. Similar research has led to the prevention of pellagra and other vitamin deficiencies. We have the knowledge to prevent serious nutritional diseases elsewhere in the world where they are still prevalent. Iron deficiency anemia is still prevalent although it can largely be prevented. Alice Marsh demonstrated the prevention of anemia by a small addition of iron to milk. Doctors, in this country, seldom treat serious nutritional disease arising from grossly faulty diets.

In 1920 few would have dared predict that in their lifetime, doctors would not be treating many cases of tuberculosis, lobar pneumonia, diphtheria, scarlet fever, whooping cough and measles. Although great discoveries have been made in the study of all of these infections, it is not clear that these studies account for the great decrease in incidence and severity. For example, we probably know more about the pathogenesis and development of immunity in diphtheria than any infectious disease. Treatment is considerably improved. We know, however, that the incidence and perhaps the severity of diphtheria has been decreasing since 1900 and earlier. To a considerable and perhaps a decisive extent, the decrease in recent years is a projection of this trend. The crucial change has been the decrease in the number of carriers of diphtheria bacilli. Active immunization has accelerated this phenomenon. Presumably the disease is unlikely to spread to carriers when the population contains a large proportion of immune individuals. Nevertheless we know that virulent bacilli can still spread as an epidemic in non-immune individuals. Such was the case a few years ago in one school in Kansas City. The epidemic did not spread throughout the city due to possibility of control with

modern knowledge of this disease. Diphtheria has become so rare that there are experienced teachers in medical schools that have never seen a case. I no longer discuss the clinical aspects of diphtheria with students despite the fact that it is one of the most interesting diseases. The devastating results of epidemics of diphtheria is illustrated by the studies by Caulfield in colonial New England. He found that as many as 60 per cent of the children in a New Hampshire village died of diphtheria in one epidemic.

Pertussis has also undergone a similar decline. People acquainted with whooping cough in recent years are likely to forget that it formerly carried a high death rate, probably due to secondary pneumonia. In addition, I suspect that the virulence of pertussis bacilli has decreased. The immunization is probably not so effective as that for diphtheria. I do not believe we know whether there has been a decline in the carrier rate. The infection may be spread like measles from active cases rather than carriers. It is clear, however, that doctors prevent and seldom treat severe whooping cough.

The decrease in tuberculosis in this country was certainly not directly dependent on treatment but on public health measures, perhaps directed largely by practitioners. It was not due to immunization, nor the effective treatment which is now available.

It is difficult to explain the decreased incidence of streptococcal diseases. There is no immunization except such as is acquired by infection. The carrier rate for group A streptococci is still high. We know that streptococci can be cultivated for two to four days before symptoms appear. It is difficult for me to believe that penicillin as prescribed for clinical disease stops the spread of streptococcal infections. Presumably the toxin producing scarlet fever is absorbed before penicillin is given. I cannot explain the sharp decrease in scarlet fever. I believe that we must assume that group A streptococci are less virulent or the host more resistant. Doctors still have to treat mild scarlet fever and streptococcal infections but seldom encounter the so-called complications such as mastoiditis, sinus thrombosis and streptococcal pneumonia.

Parallel to the decrease in severe streptococcal infections, rheumatic fever is no longer as prevalent nor as severe as formerly. Again, it is not clear that the campaign for control of rheumatic fever accounts for the decrease of this disease which is somehow associated with streptococcal infections. We know at least, that streptococcal infections of children are still widespread. We do not know why certain children develop rheumatic fever. We do know that we can prevent relapse by controlling streptococcal infections.

Hospital cases of pneumonia seem now largely due

to virus infections with or without secondary bacterial invasion. In 1920, primary pneumococcal pneumonia was common in children. I recall as a house officer in the Boston City Hospital that one service for children had as many cases of lobar pneumonia as five similar sized units for adults. Yet the majority of deaths from this type of pneumonia occurred on the adult services. Nevertheless, lobar pneumonia was a serious disease of the children. It is difficult to explain the decrease. The carrier rate for children is probably as high as formerly. The administration of sulfonamids or penicillin early may prevent the development of the lobar pneumonia. It is possible that this practice has reduced the carrier rate for the highly parasitic pneumococci. Excepting viral and staphylococcal pneumonia, doctors are treating much less pneumonia.

Of course measles is still prevalent but treatment of complications is much more effective. I recall as house officer sending ten patients from the pediatric to the contagious ward. Seven died from pneumonia. Dr. Howland taught us as medical students that measles should not be treated in hospitals because of the likelihood of virulent cross infection. In this respect, our hospitals are much better. In addition the antibiotics are effective against the bacterial complications. There has been no apparent improvement in the encephalitis accompanying measles. This is still a greatly feared aspect of measles because so many show permanent brain damage. Fortunately measles will soon be like smallpox, a disease that can be prevented by active immunization.

I shall not go into the rise and fall of poliomyelitis. This story is still fresh in our memories. The discussion could be expanded with respect to other infectious diseases. It should be clear that one cannot predict the future infections of children from those occurring now.

The improved outlook on diarrhea resulted from more complicated changes. The infrequency of severe undernutrition during the first year of life clearly played an important role in reducing the mortality. Diarrhea is still a serious disease in undernourished infants but this is seldom the case in well-nourished infants. Infections probably initiate most cases of diarrhea. By 1920, the role of *Shigellae* was fairly well understood. Dysentery has decreased apparently because mild cases and carriers are uncommon among adults. The role of contamination of milk and food was also understood in 1920. These two causes of infantile diarrhea have been well controlled in most communities of the United States. The remaining cases are thought to be due to infections but there is uncertainty of the actual infective agent or the mode of spread.

Personally, I am not certain that mild diarrhea due

to these unidentified causes is much less frequent than formerly. I am certain that mild diarrhea seldom becomes severe in a well-nourished infant when properly cared for at the onset. In addition, the treatment of those cases that become severe is much more effective. The mortality of hospital cases in 1920 was 20 to 30 per cent whereas, it is three per cent today. A recent review of 300 cases admitted to Children's Mercy Hospital revealed only three deaths.

The improved management of mild and severe diarrhea developed from our understanding of the metabolism of water and electrolytes. Many men in all fields of medicine contributed to this. Pediatricians contributed more to the rational application of physiological principles to fluid therapy than their number would lead one to expect. The reason was, first, the large number of severe disturbances of body water and electrolytes seen in infants and, second, the large variations in body size requiring appropriate consideration. Pediatricians cannot prescribe fluids based on weight alone. They must consider the rate of metabolic turnover as well as weight. The physiological concepts of fluid therapy as developed in pediatrics have been somewhat tardily applied to adults in medicine and surgery. A glance at the bottles hanging beside sick patients of all ages indicates the importance of fluid therapy. I am sure proper fluid therapy accounts for the survival of the severe cases of diarrhea. I also believe that similar therapy may well save the lives of more other severely sick patients of all ages than any drugs, perhaps including antibiotics and surgery. Probably this statement is meaningless, for fluid therapy often merely sustains the life of severely ill patients until other therapeutic measures become effective or can safely be carried out. I make this digression to the field of adult medicine to bring out that what has happened in the care of infants and children has had a similar development in adult medicine.

At present pediatricians do not have to treat many serious cases of diarrheal dehydration. I am sure, however, that proper care of the mild cases is responsible for most of the reduction in mortality. The pediatrician's role is largely the prevention of severe dehydration in diarrhea by proper management of mild cases.

From this brief review, you can see that one could not have predicted the present problems of pediatrics in 1920. The continuing problem is the children rather than particular diseases. Infants and children react sufficiently differently from adults to the various challenges producing disease so that there will always be a need for doctors familiar with infants and children. Such doctors are prepared to recognize the problems as they arise and are able to apply medical knowledge as it develops. This point of view is

well illustrated by the development of pediatric surgeons. Knowledge of the reaction of infants and children is more important in many surgical conditions than the anatomical specialization of surgery, important as anatomical considerations obviously are.

In this day of medical specialization the public is often not well served despite the expertness of medical care that is available. The public wants and has a right to expect that essential medical care be provided or started in one place. The layman is not able intelligently to select the sort of medical care he requires by shopping around. Obviously one doctor cannot master all medical knowledge and skills. For this reason adequate care must involve co-operation between doctors. While this can be attained in many ways, I am sure that group practice is one of the most effective means of achieving this end. Pediatricians are well informed on diseases of children, in part because the field is sufficiently limited to be comprehended but also because this comprehensive knowledge of disease of children permits the pediatrician to know when and where he should seek help. In group practice pediatricians and adults' doctors, whether they be called general practitioners or internists, must play the central role in handling patients. We do not need the *prima donna* attitude that diagnosis must be handled by specialists when special techniques are not required. In other words, I do not subscribe to the notion that a less well trained doctor can care for minor illness and call in super-doctors to diagnose and treat difficult cases. The man who first sees the patient must be a good doctor to recognize the limitations of his experience and training.

For children, the doctors are going to have to be able quickly to differentiate the serious from the trivial disturbances. I am always astonished how well pediatricians do just this. A lower incidence of serious diseases is not going to make this function easier. For this reason, as far as possible, communities are going to want doctors familiar with the reaction of children to diseases. Because infants and children get sick so rapidly and unexpectedly, the care of children will always involve irregular hours. I see no possibility of protection of pediatricians from long hours except practice in pairs. I am sure that the public probably understands this necessity better than the doctors.

Infectious diseases are not going to disappear with control of present prevalent diseases. I once said to a plant breeder that the development of resistant wheat had done him out of a job. He replied that quite the contrary, his job was safe as long as he could foresee. With new wheats, either new fungi appeared or old fungi developed the ability to infect the new wheat. The plant breeder has to anticipate

the diseases that will infect wheat in a few years. Similarly we may anticipate that new infections capable of causing serious diseases will appear. Infectious diseases will probably appear that are not now recognized.

I anticipate that pediatricians are going to have to apply new nutritional knowledge in the first years of life in order to prevent disease in middle life. It has been clearly demonstrated that rats fed diets that retard the rate of development in the first weeks of life live twice as long as controls. The observations involved comparison of rats fed the same diet after maturity. In other words certain degenerative diseases in rats may be postponed by dietary control in the first part of life. I realize that most men are not rats and that the finding suggests the need of more experiments rather than underfeeding in the first year of life. Nevertheless we cannot accept without reservation rapid development in early life as the criterion of nutrition leading to healthy adults. I can only state that our present practice of infant feeding is probably going to change. We do not have information at present to indicate what changes should be made.

In the past sufficient attention has not been paid to the large group of mentally retarded children. Some progress has been made. For example, neither syphilis nor hemolytic diseases of the newborn are frequent causes of mental deficiency. The genetic information now being assembled is likely to permit prevention of the birth of infants with devastating congenital defects.

Modern studies of allergy are certainly going to improve the care of this very large group of patients. What we know now seems to be confined to the important observation that people react to allergens but we don't know why certain individuals develop these reactions. Until more is known of the mechanism of allergy, we cannot predict how we shall be able to handle the cases in the future.

For some time we have known that emotional and behavior disorders are relatively common in children. I do not believe that pediatricians should try to be-

come psychiatrists on this account lest they neglect their role in taking care of non-psychiatric disturbances. I am sure, however, that pediatricians must learn to recognize these behavior disorders and must handle many. On the other hand, I hope that psychiatrists do not lose touch with somatic diseases. I am sure that research on the development and pathogenesis of disorders of behavior is going to be much more important for mental health than present practice. As in the past in other fields, advances in health come with scientific understanding rather than extensive practice without scientific understanding.

The important tasks of medicine concern the people of more or less normal endowment and possibility of normal life. For children this means the prevention of disease as far as possible, the treatment of disease so that permanent damage does not develop and the promotion of as full development as possible among the handicapped. This will require research by pediatricians as well as biochemists, bacteriologists and physiologists. It will require doctors who understand children to apply future understanding. I do not subscribe to the notion that the care of infants and children is going to be simple. As in the past 30 years, preventive medicine and the proper care of so-called minor disturbances is going to save more lives than the dramatic cures possible for certain diseases. Even a superficial examination of the mortality rates shows that prevention of disease rather than treatment accounts for most of the lives that have been saved in the past 40 years. The proportion of children in our population is rising. We all hope that their health will improve and that serious diseases will continue to decrease. We also shall expect our medical schools to continue to study how improved care of infants and children can be attained and that an adequate number of doctors can be trained in the best methods available for prevention and cure of diseases of infants and children. It is a blind public and a blind profession that discounts the importance of preventive and curative medicine as carried out by pediatricians.

THE BEST, NOT THE CHEAPEST, DRUG

The trade-name behind which a firm places its reputation and its assurance of quality and purity allows me to make my selections quickly and with confidence so I can get the best response with the chosen medications for my patients' needs. The essence of medical practice is the response of the physician to the individual needs of the individual patients. Professional judgment should not necessarily be qualified on the basis of what is cheapest.—Paul D. Foster, M.D., President, California Medical Association Council, in *California Pharmacy*, Oct. 1961.

Government Medicine?

Medical Care for the Aged

RICHARD L. LARIMORE, *Wellington*

IN OUR NATION'S CAPITAL as well as across the land, violent controversies are now in progress. Behind all the arguments and counter-arguments lies the question of medical care for the aged and whether it should be financed through Social Security and the federal government.

This paper will conscientiously attempt to explore the problem. It will develop the plans which are now in use, plans which have been proposed, and the need of such plans. Existing private health insurance plans will not be discussed and only statistical reference will be made to them. Each phase of the paper will be evaluated as objectively as possible and fairness to both sides of the question will be honestly attempted.

Is There a Need?

In order to establish whether or not there is a need, it is necessary to consider the health, financial position, and costs of medical care for the aged. A person sixty-five or older is considered as aged. There are seventeen million aged persons in the United States today.

A very important aspect of the health of the aged is chronic illness. Webster's defines chronic illness as "last a long time; also, recurring: said of a disease, and distinguished from acute."

President Kennedy's back condition is a good example of chronic illness. An even more graphic example would be that of a diabetic. A diabetic is chronically ill, yet he can live a perfectly normal life through the use of insulin. The connotation commonly given to the term "chronic illness" is that the affected person is very ill and totally disabled. This is a complete fallacy.

Of our aged, 77 per cent have chronic conditions. It should be noted that only 14 per cent have any significant limitation of activity, and only 5 per cent suffer a loss of mobility. In the 55 to 64 age group, over 60 per cent have chronic conditions, and in the 30 to 44 age group, almost 50 per cent have chronic ailments.¹ What do these figures represent? They show that the aged have a higher incidence of either some loss of mobility, or a limitation on activity or earning power.

This article is a theme written by a high school student, and is published, without editing, as an example of the thinking and the ability of the younger generation. You may not agree with all statements and you may think of additional points which he should have brought out, but it will make you think.
—Editor

Acute illness is another subject which must be examined. According to the National Health Survey conducted from July of 1958 through June of 1959, the rate of acute illness in the aged is approximately 60 per cent of that of younger persons.² Acute illness is defined by Webster as "severe but of short duration; not chronic: said of some diseases." The explanation of the higher rate of chronic illness and the lower rate of acute illness in the aged is simple. In the past half century, medical science has succeeded in prolonging the lives of a large proportion of our population. Because of this, the number of aged persons with chronic illness has increased, while the number with acute illness has decreased.

Three separate surveys were recently conducted among the aged in an effort to determine their health as a group. In two of the surveys, 11 to 23 per cent reported poor health. In the third survey, 10 per cent considered themselves to be in failing health.³

Another similar survey was conducted by the National Retired Teachers' Association which has 100,000 members, and the American Association of Retired Persons which has 50,000 members. Each member was sent a questionnaire. The results bear out the findings of the previously mentioned surveys. Of the combined membership, 87 per cent considered themselves to be in good health. Another interesting item brought out by this survey was that 86 per cent of the members had medical or hospitalization insurance.⁴

All other surveys conducted up to the present have produced almost identical results. From these figures

¹ Statement of the American Medical Association before the Ways and Means Committee of the House of Representatives (American Medical Association), p. 18.

² *Ibid.*, p. 18.

³ News item in *The A.M.A. News*, February 10, 1961, p. 3, col. 1.

⁴ A.M.A. Statement, *op. cit.*, p. 18.

a person can safely draw the conclusion that most of the aged are in good health.

Hospitalization is another factor which must be taken into account. The National Health Survey has found that the aged need approximately twice the hospitalization of younger persons.⁵ This is largely due to the fact that the aged require longer periods for recovery and more of the aged which are chronically ill need hospitalization.

Much emphasis is being placed upon the finances of the aged. Anyone who has read very much about medical care for the aged has undoubtedly seen the oft quoted figure that 60 per cent of the aged have yearly incomes of \$1,000 or less. This figure in itself would lead a person to believe that *all* the aged are near destitution, but as Alfred Marshall, considered by many to be the father of modern economics wrote, "the most reckless and treacherous of all theorists is he who professes to let facts and figures speak for themselves."⁶ Although the figure is accurate, it is just as accurate to say that 64.4 per cent of all Americans have annual incomes of \$1,000 or less. It is also a fact that nearly 50 per cent of our total population over 14 have yearly incomes of \$1,000 or less. These are the facts. Financially our aged are not in as poor condition as supporters of government legislation would have our citizenry believe.

Medical care costs more dollars than it did twenty years ago, but its increase is comparable if not less than many other essentials. Our American dollar is spent in the following proportions: 27 per cent for housing, 22 per cent for food, 6 per cent for recreation, 10 per cent for clothing, 12 per cent for travel, 6 per cent for health, 5 per cent for tobacco and liquor, and 12 per cent for all other items.

The percentage increases from 1941 to 1961 consists of some very interesting figures. Since 1941, food has gone up 151 per cent, clothing up 106 per cent, shoes up 169 per cent, and physicians' fees up 90 per cent. In 1941 physicians took 30 per cent of the health dollar. In 1961 they received 25 per cent of it. Drugs accounted for 22 per cent in 1941, but only for 20 per cent in 1961. Although physicians' fees and drugs have lowered since 1941, hospital costs and insurance have raised. Even at this, Americans pay less for health today than they did 20 years ago.⁷

One of the chief criticisms of health today is hospitalization insurance. Backers of a federal health program say that older people do not have insurance and are being discriminated against through higher premiums and reduced benefits. To somewhat of an

extent, this is still true; but the insurance situation is improving at an unprecedented rate. More coverage and lower premiums is quickly becoming the rule instead of the exception.

In the past 20 years, the number of insured people in the United States has jumped from 12 million to 123 million. The Health Insurance Institute found that 73 per cent of our civilian population had voluntary health insurance at the end of 1960,⁸ and all studies instituted thus far have shown that 80 to 90 per cent of the aged have hospitalization insurance, savings, or potential help from children or relatives. It has also developed the following estimates in regard to health insurance and the aged.

Year	Per Cent Covered
1961	60
1965	75
1970	90

It must be taken into consideration that many of the aged receive aid from Old Age Assistance Programs and therefore do not purchase health and hospitalization insurance.

Another example of the improving conditions in the insurance field is that of the American worker. In 1959, for example, 55 per cent of the workers had the right to retain or convert their insurance upon retirement. In 1960, 70 per cent had the same right of retention or conversion. This in itself illustrates that the insurance situation is rapidly bettering itself.

From all these facts, four things can accurately be determined.

1. Most of the aged are in good health, a minority are not.
2. Most of the aged are financially stable, some are not.
3. A person gets more for his health dollar than he did twenty years ago.
4. The insurance situation is getting much better, not worse.

Federal and State Plans in Effect

The Kerr-Mills bill became law on August 23, 1960. It was named for Senator Robert Kerr of Oklahoma and Representative Wilbur Mills of Arkansas. Both men are Democrats.

The recent law is designed to enable every state to guarantee health care to every aged American who needs help. It covers over two million persons under the care of Old Age Assistance and all others who cannot pay for serious or prolonged illness.

⁵ A.M.A. Statement, *op. cit.*, p. 18.

⁶ A.M.A. Statement, *op. cit.*, p. 19.

⁷ L. S. Nelson, Sr., M.D., "Kerr-Mills Versus King-Anderson," *THE JOURNAL OF THE KANSAS MEDICAL SOCIETY*, vol. LXII, August, 1961, pp. 377-379.

⁸ A.M.A. Statement, *op. cit.*, p. 24.

The money used by the program is granted from funds of the Department of Health, Education and Welfare. It is given to the individual states on the basis of per capita income and what services the state provides. Services that can be obtained by a state after adoption of the law are specifically provided in its context.

A state may adopt any or all the services listed below depending upon how ambitious a program the state wishes to institute. The specified services are, "in-patient hospital or clinical services; home health care services; private duty nursing services; physical therapy and related services; dental services, laboratory and X-ray services; prescribed drugs, eye glasses, dentures, and prosthetic devices; diagnostic, screening and preventative services; and any other medical care or remedial care recognized under state law."⁹

When the Kerr-Mills Law was first introduced, many advocates of complete federal control and supervision stated that the states would never participate. The experts were certain the individual states would take part in the plan because of the tremendous financial incentive it offered. The amount of federal reimbursement varies from state to state. It ranges anywhere from 15 to 85 per cent depending upon the state's program. At the present time, 23 states have adopted the law and have begun its administration.

Even now, a full year and a half after its enactment, arguments continue to flow forth on both sides of the issue.

To evaluate the Kerr-Mills Law fairly, both its assets and liabilities must carefully be examined.

The chief assets are as follows:

It is voluntary. The state has the right to decide whether or not it wants to adopt Kerr-Mills legislation.

The law limits aid to the needy aged. It does not pay for people who do not need help.

The law sets up a federal-state matching system which is under state control. This is the old principle that a state can determine how to use money for its individual problems better than the federal government.

There are no deductibles which a person receiving aid must pay. Coverage is given from the first day of hospitalization.

It preserves the right of the doctor to determine his own practice. Interference by a state into a doctor's practice is strictly forbidden.

The right of the individual to choose his own doctor and hospital is retained. The patient can

make use of any doctor or hospital as long as it is recognized as such. For instance in Wellington, a person could use any of our three hospitals or any of our doctors because they are recognized by the state of Kansas.

The plan is financed through general revenue rather than a payroll tax. This does not cut small paychecks even more.

The liabilities of the Kerr-Mills Law must also be taken into consideration.

The chief liability of the plan is its high costs and the abuses it receives from patient and doctor alike.

For example, take West Virginia, the first state to adopt the plan. This state provided all the services of the Kerr-Mills Law and also set very liberal eligibility standards.

The bills for the first month of operation were \$1,340, of which the state paid \$336. In comparison, the eighth month, June, required \$391,859 of which the state paid \$107,016. For the first 14 months of the program, the bills were \$3,674,363. West Virginia paid \$1,056,338 of this. The unpaid bills and administration costs were not included in these totals. The state's share of these two items amounted to \$795,200.¹⁰

What were the reasons for such astronomical figures? The chief reasons were over-utilization, lax eligibility requirements, and abuses. The requirements to receive aid under MAA (Medical Aid for the Aged) were so liberal that many people who really could afford their own medical expenses applied and received aid from the state. This in turn produced over-utilization. When the eligibility standards were stiffened in January of 1962, the number of persons on MAA was cut almost in half.¹¹ This will stop much of the over-utilization, but no doubt it will continue.

Abuses by hospitals and doctors also took their toll. It seemed that hospitals in financial difficulty deemed it necessary to keep their vacant beds filled with MAA patients for the maximum of 30 days at \$35 per day.

Many doctors went back to school and became specialists so they could collect the higher \$10.00 fee for office calls.

Abuses of the system account for much of the financial difficulties now being encountered by West Virginia, but welfare director Smith said that he was "optimistic that we may be able to reach some solution."¹²

At the present time it is very hard to make a definite conclusion as far as the Kerr-Mills Law is

⁹ Helping Those Who Need Help (American Medical Association).

¹⁰ Financial Ulcer, *Newsweek*, January 22, 1962, p. 18.

¹¹ *Ibid.*, p. 18.

¹² *Ibid.*, p. 18.

concerned. The law has been in effect for just barely a year and a half, and to state whether or not the program is working out successfully would be virtually impossible, but three things can be stated.

1. Kerr-Mills does the job it was designed for, but it has become a very expensive undertaking for some states. West Virginia certainly is not typical of the plan at work. Much of her problem was created by her own procedures.

2. Kerr-Mills is definitely subject to abuses, but every government program where a person gets something for nothing is subject to the same thing.

3. Before Kerr-Mills is either condemned or accepted as a medical care plan for the aged, it must have more time to develop itself. Any judgment made at this early date is certainly premature.

In 1936 the state of Colorado passed a constitutional amendment which provided old age assistance for pensioners.

In 1955, because of the increasing national emphasis which was being placed on the health of the aged, the Governor of Colorado set up a Governor's Commission on the Aged. This group was to study the medical problems of the aged in Colorado and report its findings. The Commission's report was made in April, 1956. In November of the same year, an amendment was placed before the people. It contained this basic provision which had been developed in the study: "Establishment of a \$10 million a year fund from tax revenue to finance a health and medical program for pensioners, to be defined and administered by the state department of public welfare."¹³ Other provisions were also in the amendment but none of them applied to the medical care problem. The amendment passed by an almost two to one majority. It went into effect on January 1, 1957.

The program was set up in the following manner. Blue Cross and Blue Shield were to pay the cost of hospital care and in-hospital services (physicians' fees included) for pensioners. The state would then pay back the entire cost plus a \$2 fee for each claim handled.

Nursing homes were to be directly administered by the welfare department.

Hospitalization under this plan provided for full cost for 30 days in a semi-private room. Longer tenure could be obtained if the physician asked for it and it was approved by the welfare board. TB and psychotic pensioners are not covered.

Complete coverage would be given physicians'

services for in-hospital surgical and medical treatment, and for accident and emergency treatment either in or out of hospital. Treatment could be administered by any Blue Shield member physician or doctor eligible for membership.

Standard fees were to be charged. The plan allowed for two office or home calls per each calendar quarter. Blue Shield would pay \$3 for office calls and \$5 for home calls. In Colorado, the average office call costs \$4 to \$5 and a home call costs \$7 to \$8. The physicians could bill the pensioner the difference. Blue Shield was to administer this service for a flat fee of \$4,500 per month.¹⁴

Effective December 1, 1958, physicians' services were extended to nursing home pensioners. They could have two doctor's calls per month per case, and two extra calls if acute illness was involved. The doctors would be allowed \$5 per call and \$2 for each additional patient they examined. Physicians would be limited to one call per day except in case of emergency. A \$7 fee was to be charged for night calls. Consultations and services of assistant surgeons were also covered.

As previously mentioned, nursing homes would be directly administered by the welfare department. The plan was set up so that the pensioner paid the nursing home \$100 of his pension each month. Any costs above the \$100 are to be paid by the welfare department. The amount of the additional money paid depends upon the services available and the amount of care required by the pensioner. A \$95 maximum is set on each supplement. The average is \$67. No more than \$250 can be collected from relatives to make up any remaining deficit.

Prescribed drugs in hospitals are covered under the Blue Cross arrangement. Coverage is also given to nursing homes but cortisone, common household remedies, personal care items, and food supplements are not provided for. The welfare department limits the amounts and refills used in nursing homes.

Because of the long distances a pensioner might have to travel in order to reach a hospital or nursing home in Colorado, the welfare department pays the cost of transportation.

The utilization rates of the Colorado plan are interesting. Colorado pensioners have a utilization rate of 424 per 1,000, while Colorado Blue Cross members have a rate of 163 per 1,000. The national rate for insured persons over 65 is 180 per 1,000.¹⁵ These figures show that over-utilization is present in the system. Over-utilization means added expense.

¹³ William T. Reich, Ph.D., and Odin W. Anderson, Ph.D., *Colorado's Medical Care Program for the Aged* (Health Information Foundation Perspectives, New York), p. 3.

¹⁴ William T. Reich, Ph.D., and Odin W. Anderson, Ph.D., *op. cit.*, p. 8.

¹⁵ William T. Reich, Ph.D., and Odin W. Anderson, Ph.D., *op. cit.*, p. 23.

Below is a utilization-cost chart.¹⁶

	a	b	c	d
Pensioner	12.0	\$23	\$274	\$ 5.2 million
Blue Cross Member	7.0	\$24	\$167	\$17.3 million

a—Average days per admission.

b—Average cost per day.

c—Average cost per admission.

d—Total cost per year.

Although the cost per day of pensioner is less, the state program costs more because of the pensioner's longer stays. The state system has roughly one-tenth of the membership of Colorado Blue Cross, yet it pays one-fourth the total expended by Blue Cross. The higher utilization rate is definitely responsible for this.

Colorado doctors felt that their fees were too low so a new fee schedule was set up which raised the fees one-third to one-half of most standard procedures. This new schedule took effect on January 1, 1960.

As 1960 progressed, it became very evident that the \$10 million maximum limit would be passed. The welfare board found that the program was going to produce a \$1,400,000 deficit if something was not done. Because of this situation, the number of hospitalization days covered was reduced on September 15, from 30 to 21. The right of the physician to apply for extended coverage was retained. Other benefits were also reduced, but the deficit was still estimated at \$600,000.

Plans Proposed at the Present Time

At the present time, a new medicare bill is locked in the House Ways and Means Committee. It is the King-Anderson Bill, named for Representative Cecil King of California, and Senator Clinton Anderson of New Mexico.

Of the committee's 25 members, ten are Republicans and 15 are Democrats. It is up to these men whether or not the bill will reach Congress this term. The ten Republicans are on the record against the bill, and ten of the Democrats are for it. The deciding votes lie with the other five members of which Wilbur Mills, co-author of the Kerr-Mills Law, is part. He says that he is against the King-Anderson Bill. This leaves the other four Congressmen in somewhat of a precarious political position with elections coming up. None of them want to be responsible for delaying the bill, and yet they have mental reservations about the bill itself. Only time will hold the answer. The King-Anderson Bill is probably just as

controversial as its predecessor, the Forand Bill, which was decisively defeated.

What is the King-Anderson Bill? It is a plan for medical care for the aged. It provides for 90 days in-patient hospital care. This would include bed, board, hospital facilities, drugs, biologicals, supplies, appliances, diagnostic and therapeutic items, and other items.

The plan would not include physicians' fees except in radiology, pathology, psychiatry, and anesthesiology.

It would include all types of services rendered by an intern or resident under an approved teaching program.

The patient would have to pay a deductible of \$10 per day for the first nine days. The minimum deduction is \$20.

It also provides for 180 days of nursing home services, but the combined in-patient hospital and nursing home services could not exceed 150 days during a benefit period. Nursing home service would consist of care from or under the direction of a professional nurse or a licensed practical nurse, bed and board, physical, occupational and speech therapy, drugs, biologicals, supplies and appliances.

The plan would allow for 240 visits per year from health homes. Health home services are defined in the bill as "under the care of a physician by a home health agency under a plan established and periodically reviewed by a physician under which the following services are provided in the individual's home."¹⁷ The services provided are part-time or regular nurse, physical, occupational, or speech therapy, part time homemaker services, medical supplies (other than drugs and biologicals), and appliances. Also included are other necessary services which are permitted in the regulations.

Out-patient diagnostic service is also provided in the plan but is subject to a \$20 deductible per study.

Only drugs found in the *United States Pharmacopoeia*, *National Formulary*, and *New and Non-official Remedies* would qualify for the program.

The benefit period of the King-Anderson Bill would begin on the first day of hospitalization. A new benefit period could not begin until 90 days after the last day a patient was in a hospital or nursing home.

One of the primary criticisms of the King-Anderson Bill is its high costs. The Department of Health, Education, and Welfare has set the estimated cost for the first year at \$1.1 billion.¹⁸ Other estimates are much higher. For example, the New York Board of Trade made what it called a "conservative" estimate

¹⁶ William T. Reich, Ph.D., and Odin W. Anderson, Ph.D., *op. cit.*, pp. 14 and 23.

¹⁷ Representative Cecil King, Health Insurance Benefits Act of 1961, p. 2.

¹⁸ Help for the Aged—The Kennedy Plan, *U.S. News and World Report*, February 5, 1962, p. 60.

of \$2.8 billion. An even higher estimate was set by Richard H. Hoffman, Assistant Actuary of the Equitable Life Assurance Society. He told the Society in March of 1961 that the King-Anderson Bill's cost would reach four billion in the first year.¹⁹ He arrived at this figure by using HEW's payroll estimate and a tax base of \$5,000 at a two per cent increase. The \$5,000 tax base has now been raised to \$5,200.

When the bill was first introduced, HEW set the costs of nursing homes at nine million dollars. The estimate was then changed to \$25-255 million, leaving a \$230 million dollar range in which to arrive at the final estimate. The final estimate was set at \$25 million, which is three per cent of the total cost. In comparison, the State of Washington, which has a program in effect which is very similar to the King-Anderson Bill, expended 58.7 per cent on nursing home care in the fiscal year lasting from July 1 of 1959 to June 30 of 1960.²⁰ The difference in expenditures for nursing homes in the two programs means one of two things. First, either the authors of the bill plan on over-utilization of hospitals, or second, they have made their estimates unrealistically low. In either case, the result is not success.

In order to finance the King-Anderson Bill it would be necessary to raise the Social Security taxes at the following rates. The rates would be based upon an increased tax base of \$5,000. This was later re-raised to \$5,200.

EMPLOYER-EMPLOYEE PAYS (EACH)²¹

	<i>Planned Rates</i>	<i>Proposed Rates</i>
1962	7¼%	7¼%
1963-64	7¼%	7½%
1965	7¾%	8 %
1966-68	8¼%	8½%
1969 on	8¾%	9 %

These rates applied on a raised wage base of \$5,200 would mean that a person earning more than \$5,200 would pay an increase in Social Security taxes amounting to 17 per cent.

The King-Anderson Bill would cover all aged beneficiaries of Old Age Survivors Disability Insurance. HEW estimates that 14.25 million aged will be covered by 1963.²²

The King-Anderson Bill is the subject of many discussions. To evaluate the bill fully, its pros and cons must be carefully considered.

The arguments for the bill are:

The Social Security System offers an efficient, ready made administrative machine through which the program could be handled.

The Social Security System would retain the important doctor-patient relationship, including choice of physician.

Many people needing aid but not belonging to Social Security would get it.

The Social Security approach would be the cheapest to operate.

The cons of the debate are:

Non-cancelable insurance is well within the means of the aged and an estimated 90 per cent of them will have it by 1970.

One-fifth of American families pay no income tax, but they do pay Social Security. The King-Anderson approach cuts their small take home pay even more.

The program would destroy our excellent medical system which is based upon free enterprise. Whenever the government makes an agreement with a supplier of goods or services, the prices and qualities of the goods and services must be acceptable to the government. If the government was buying 15 to 20 per cent of all health care in the United States, it is not hard to see that it would exercise an appreciable amount of influence on the supplier.

The plan calls for deductibles to be paid by the individual. If a person was really indigent, where would he get the money to pay these.

The bill limits nursing home care to "services by a skilled nursing facility, and would include nursing care provided by or under the supervision of a registered professional nurse or a licensed practical nurse."²³ Representative Adam Clayton Powell stated in a debate on the Practical Nurse Training Act that of the 23,000 nursing homes in the United States, only 9,000 had the services of either a professional or a practical nurse.²⁴ This means that the nursing home services in the bill would be unavailable in many parts of the country. There is also reason to question health home services, for there are only 900 such services in the 3,067 counties in the United States.²⁵

Any honest attempt at evaluation of the King-Anderson Bill shows that it would undermine our fine medical system which leads the world not only in quality, but in quantity. Despite Secretary Ribicoff's statement that "Our program is not socialism,"²⁶ it is definitely a step towards state medicine. King-An-

¹⁹ A.M.A. Statement, *op. cit.*, p. 44.

²⁰ Odin W. Anderson, Ph.D., and William T. Reich, Ph.D., *Health Care for the Aged in the State of Washington* (Health Information Foundation Perspectives, New York), p. 10.

²¹ Representative Cecil King, *op. cit.*, p. 7.

²² Representative Cecil King, *op. cit.*, p. 7.

²³ Representative Cecil King, *op. cit.*, p. 2.

²⁴ A.M.A. Statement, *op. cit.*, p. 12.

²⁵ A.M.A. Statement, *op. cit.*, p. 14.

²⁶ Help for the Aged—The Kennedy Plan, *U.S. News and World Report*, February 5, 1962, p. 63.

derson would be the beginning of state controlled medicine. In foreign lands, programs have been instituted to cover the people. The benefits under these programs have mushroomed into such proportions that they are so far removed from the original concept of the program that it is unidentifiable. In France for example, the employer pays 27.25 per cent and the employee pays six per cent for the four basic categories of social insurance (old age survivors-disability, health and maternity, family allowances, and work injuries). The employer also pays for the national pension system, the supervisor pension plan, the employee's income tax relief, for work accidents, for apprentice education, plus an allowance for the employee's house or apartment and for the employee's family.²⁷ The same thing has happened in West Germany and Italy. It is not improbable that our Social Security System will be similarly affected by the King-Anderson Bill should it be adopted by Congress.

The newest plan concerning health of the aged has recently been announced by Blue Shield in cooperation with the American Medical Association. The plan covers all senior citizens over the age of sixty-five.

The AMA-Blue Shield plan provides for all surgery, including multiple procedures, oral surgery, and anesthesia when ordered by a physician.

Hospital and medical care would be provided for 70 days. A patient could not be re-admitted to a hospital and receive benefits prior to 90 days after his previous discharge date. Thirty day service is provided for TB, nervous, and mental patients. This coverage is not found in other plans. All services are provided on a one year basis.

Nursing home service is included. A patient discharged from a hospital may receive 13 weeks of nursing home care and one visit from his physician per week.

Radiation therapy and all treatments using radium and radioisotopes are covered.

X-ray examinations with film is provided for hospitalized bed patients and out-patients when needed for initial diagnosis or treatment of an injury.

In-patients also receive laboratory and pathological examinations in the plan.

Prolonged detention, the medical service rendered to a subscriber for a critical period of illness when medical service shall consist of "constant and prolonged bedside attendance by the attending physician."²⁸

Full costs of medical-surgical services are paid for

single persons with incomes of \$2,500 or less and married couples with incomes of \$4,000 or less. Persons or couples with incomes amounting to more than the limits could be subject to an additional charge from the individual's physician.

The costs of the program are estimated at \$3.20 per month for a single person, and \$6.10 per month for a married couple.

Four points must be brought out in the evaluation of the AMA-Blue Shield plan.

First, the individual under the plan has entered into a contract with Blue Shield and it must provide the services in the plan. In a government plan, the person must pay for the services, but the government is not in any way required to maintain standards or fulfill promises.

Second, the plan does not provide for drugs. This is more than likely the plan's chief shortcoming, but drugs take only about one-fifth of the money spent on health. The chief expenses are centered in doctor's fees and hospital expenses. These are covered under the plan.

Third, the plan is provided for *all* aged citizens. This completely ruins the argument that older persons are being discriminated against.

Fourth, the premiums are well within the means of most of our senior citizens.

Having considered these four basic points of the plan, it can be determined that three things are definitely found in the plan.

1. The plan in no way infringes on the doctor-patient relationship. There are no regulations concerning what doctor the patient may consult or what hospital the patient must attend.

2. The plan is free enterprise. If a person does not wish to take part in the program, he is not required to do so.

3. The plan will provide for the chief expenses of hospitalization.

After having considered the principal aspects of the health of the aged, these conclusions may be drawn.

Government plans are usually more expensive than estimated. Any legislation such as King-Anderson or as radical as it, will cost untold billions and infringe upon an American's basic right of free choice. For instance in New Zealand, the cost of its government controlled medicine has multiplied eight times in the past five years.²⁹ The administration costs also present a dilemma. In Germany it takes one worker for each 100 people covered under its plan. This same

²⁷ A.M.A. Statement, *op. cit.*, p. 51.

²⁸ Blue Shield in a Few Words (Kansas Blue Shield).

²⁹ The Voluntary Way Is the American Way (American Medical Association).

rate applied to a system of socialized medicine in the United States would mean that a million and a half non-medical people would be required for administration.

The American medical system is the most advanced of the world and is one of the best examples of free-enterprise in the United States today. At the present time, our medical profession is much more free of government control and stipulation than the majority of enterprises. President Kennedy said that "the uncommitted nations seek examples of the free-enterprise system in operation,"³⁰ yet both himself and his administration are seeking to regulate and control medicine, which definitely is free-enterprise. The King-Anderson Bill, backed by the Federal government and the President, will socialize medicine for a segment of our population. This socialization will then spread to other age groups, just as foreign social programs have expanded. Lenin stated that, "Socialized medicine is the keystone to the arch of the Socialist State."³¹ If medicine is to be socialized because the people need doctors, why not the gasoline business, the publishing industries, teaching, and food stores. Certainly we all need the services of these professions. Socializing medicine would open the gate for complete socialization of our lives. The King-Anderson Bill and its supporters are attempting to start our country down the road to complete nationalization such as that found in Germany. Why should we try to implement systems in our country which have already been proven unsuccessful in others?

This paper has developed the health of the aged and shown that there is no need for such programs as King-Anderson. Most of the aged are in good health. Only a minority are not. Most of the aged need no help from the government. Private health insurance will have been purchased by 90 per cent of the aged by 1970, thus making federal aid even more unnecessary.

A Wellington physician has stated that not a single person in Sumner County who really needs medical care cannot get it. Even if a person cannot pay, he is not refused service by a doctor or a hospital. This accounts for much of the deficits developed in the hospitals of today.

If the King-Anderson Bill is adopted and medical care for the aged is socialized, the traits inherent with the British system will become ours. A few of its traits are lack of interest in medicine by college students who could become doctors; high, almost overwhelming costs; lack of quality and quantity, and a

slowing down of medical progress. These things do not belong in the United States.

All this boils down to one thing. If the citizens of the United States would quit looking for something for nothing and accept their responsibilities, there would be absolutely *no* need at all for any kind of program except a county program for the truly indigent. Bear this always in mind, for if and when the government institutes a program for medical care for the aged, every working citizen of the United States will pay.

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Small worries are worst when we are idle and are often dispersed by motion like a flock of gnats.—*Charles Horton Cooley*

There are two times in a man's life when he should not speculate: when he can afford it, and when he can't.—*Mark Twain*

If America is to be civilized, it must be done (at least for the present) by the business class.—*Alfred North Whitehead*

³⁰ Help for the Aged—The Kennedy Plan, *op. cit.*, p. 68.

³¹ The Voluntary Way Is the American Way (American Medical Association).

Habitual Abortion

Progesterone-Like Hormones for Prevention of Fetal Loss*

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THIS STUDY was made to determine the number of pregnancy losses that can be expected among normal women and the number that can be expected^{8, 9} among women who have lost previous pregnancies. The women who have lost previous pregnancies are divided into two groups: one group was treated with hormones and a control group using no hormones.

Our definition of pregnancy losses included all pregnancies that did not terminate with a live healthy infant. Thus it includes early abortions of eight weeks gestation on up to term pregnancies in which the infant does not survive. The study takes the facts just as they stand, making no correction for fetal losses which may be chargeable to the operator.

The control study covers 5,507 obstetrical patients who completed their pregnancy during 1959 and 1960. Table I shows that the total fetal salvage in an unselected group of women is 87.6 per cent living healthy babies. The pregnancy loss in the first 22 weeks was heavy with 10.4 per cent abortions. Term deaths, premature deaths and stillbirths beyond 22 weeks gestation account for a loss of exactly 2 per cent. The fetal loss in such an unselected group of control women was 12.4 per cent.

The control group was divided according to the number of previous abortions they had. Table II reveals some interesting facts about the effect that past abortions have on the future obstetrical career

of that particular woman. Our study confirms the findings of Malpas and those of Eastman that there is a sharp upward curve in the number of pregnancy losses as the number of previous abortions increases. Speert's series gives a much better prognosis than we found. With no previous pregnancy losses our con-

Pregnancy losses in an unselected group were 87.6 per cent. Previous losses, particularly early abortions, increase the probability of future losses. Treatment with artificial progesterone-like substances gives encouraging results in fetal salvage although other elements of the treatment contribute to the benefits.

trol group has a fetal salvage percentage of 90.7 per cent healthy living babies. With one previous abortion the fetal salvage dropped to 78.4 per cent normal healthy babies. Those with two abortions had a fetal salvage of only 31.2 per cent living healthy babies. Not only is the abortion rate increased, but the losses during the last four months gestation are also greatly increased. Fetal losses in the last four months gestation are increased from 1.8 per cent to 2.7 per cent to 6.2 per cent with each additional previous abortion. Colvin and also Hodgkinson found a tendency to premature delivery and premature loss in women with previous abortions. Obstetrical patients with three previous abortions which were untreated controls had a fetal salvage percentage of only 8 per cent living healthy babies. Women with four or more previous abortions which were untreated in this pregnancy had a total pregnancy loss and a fetal salvage of zero. The time is long past when habitual aborters^{5, 7, 12} with three previous abortions are the only patients for serious concern in treatment and in research projects. The group of women who need our special interest and concern should start with that 10

* Norlutin—P. D. & Co.
Delalutin—Squibb
Enovid—Searle

TABLE I
FETAL SALVAGE, UNTREATED CONTROLS

5507 Obstetrical patients
573 Abortions up to 22 weeks, 10.4%
106 Term deaths, premature deaths and stillbirths 2.0%
679 Total pregnancy loss—abortions, stillbirths and neonatal deaths 12.4%
4828 Living healthy babies sent home 87.6%

TABLE II
CONTROL STUDY, FETAL SALVAGE
RELATED TO PREVIOUS FETAL LOSS

4908	Obstetrical patients who had no previous abortions
368	Aborted 7.5%
89	Term deaths, premature deaths, and stillbirths 1.8%
457	Total pregnancy loss 9.3%
4451	Living healthy babies from mothers who had no previous abortions 90.7%
435	Obstetrical patients who had one previous abortion
82	Aborted 19%
12	Term deaths, premature deaths, and stillbirths 2.7%
94	Total pregnancy loss 21.6%
341	Living healthy babies from mothers who had one previous abortion 78.4%
80	Obstetrical patients who had two previous abortions
50	Aborted 62%
5	Term deaths, premature deaths, and stillbirths 6.2%
55	Total pregnancy loss 69%
25	Living healthy babies from mothers who had two previous abortions 31.2%
36	Obstetrical patients who had three previous abortions
33	Aborted 92%
0	Term deaths, premature deaths, and stillbirths
33	Total pregnancy loss 92%
3	Living healthy babies from mothers who had three previous abortions 8%
40	Obstetrical patients who had four or more previous abortions
40	Aborted 100%
0	Living healthy babies from mothers who had four or more previous abortions

per cent of obstetrical patients who have had one previous abortion.

Every patient who has had a previous abortion is made a matter of special study. A frog test is done 40 days after the L.M.P. If the frog test is positive she is started on some type of hormones.

We are reporting the use of three products: Norlutin, Delalutin and Enovid. Thyroid therapy is given to all patients as indicated. Small stilbestrol doses are also given. Smith et al. advocated the importance of stilbestrol in treating threatened abortions. We have observed in a previous study¹⁵ that stilbestrol is beneficial to the pregnancy. Goldzieher and Beningo conclude that stilbestrol is of very little value. An-

other reason we give small amounts of estrogen is to neutralize the masculinizing effect which the progesterone-like products may have. We had masculinization only with one of the products and those were only minor manifestations in two infants.

Table III gives the average number of abortions which the treated patients had previous to this pregnancy. With all three groups the previous abortions averaged very near to two per patient. The average daily dosage of the special hormone is given in Table III. This table gives the outcome of each pregnancy. The number of live healthy babies varies from 50 per cent on up to 78.7 per cent as can be seen in Table III. The results of Hodgkinson et al. are similar considering that most of their patients had three previous abortions. There were no malformations among any of the infants treated with any of the hormones. This agrees with the findings of Burge and of Thompson that threatened abortion does not predispose to fetal malformation. There were no term infant deaths but there were two stillbirths near term. In neither of the women was there any apparent cause for the stillbirth. The abortion rate was quite consistent when treated with any one of the three hormones. The fetal loss during the 22nd to 30th week was high in the Norlutin group, moderately high in the Delalutin group and relatively low in the Enovid group. Any substantial superiority of the three hormones is noted in the results seen in the last four months of pregnancy. We continue hormone therapy the entire pregnancy.

In Table IV is seen that treated patients with two, three, four or more abortions have quite good chance of carrying a healthy baby to term. Contrast this with Table II untreated controls where only eight per cent of those with three previous abortions carried a healthy baby to term.

The treated patients averaged about two previous abortions per patient. In the control group there were 80 patients with two previous abortions. The comparative results of women with two previous abortions are given with each of the three special hormones and also the results of the untreated group. The fetal salvage in each of the treated groups is far enough above the untreated group in order to make the treatment worth while. In Table II the control groups have a sharp rise in the percentage of abortions as the number of previous abortions increases. In our treated series as shown in Table IV there is a remarkable fetal salvage in women who have had three or more previous abortions. The fetal salvage in untreated cases with three or more previous abortions was very low in our controls.

Complications and side effects were very low with each of the hormones used. We noted no undesirable side effects with Enovid. Seven of our Delalutin pa-

TABLE III
HORMONE TREATED PATIENTS WHO HAD PREVIOUS ABORTIONS

	<i>Norlutin</i>		<i>Delalutin</i>		<i>Enovid</i>	
Total patients	40		66		61	
Number of previous abortions	2.1	per patient	1.8	per patient	2.1	per patient
Dosage of special hormone	26	mg. daily	100	mg. per wk.	20	mg. daily
Patients with live healthy babies	20	50 %	42	63.6%	48	78.7%
Pregnancies to term L. & W.	12	30 %	33	50 %	39	64 %
Deliveries at 28 to 37 wks. L. & W.	8	20 %	9	13.6%	9	14.7%
Stillbirths	1	2.5%	0		1	1.6%
Deliveries 26 to 30 wk. expired	5	12.5%	7	10 %	3	4.9%
Deliveries 22 to 26 wk. expired	6	15 %	3	4.5%	0	
Abortions 8 to 22 wk.	8	20 %	14	21 %	9	14.7%
Term expired	0		0		0	

tients became sensitized to the I.M. injections of the hormone to the extent that the injections needed to be discontinued. The Norlutin treated patients manifested transitory masculinizing effects in about 35 per cent of the mothers. These regressed at the end of the treatment. Two female infants had enlargement of the clitoris in the Norlutin treated group. Both of these are not of a serious nature, the vagina appears normal. A minor surgical procedure will correct both of these children if the condition remains unchanged when they are a little older.

This study covers two years and nearly 6,000 obstetrical patients. This is not sufficient to establish any facts. King has reviewed the findings of a number of authors and such large numbers are necessary. We are continuing our series. We are convinced that pregnancies are salvaged by using hormones and will continue to make such a patient a special patient. By being a special patient, the individual

already receives some psychological benefit which becomes another factor in aiding the pregnancy. Other advantages of being a special patient are early bed rest and sedation at any sign of spotting or uterine cramps. Our treated cases more often receive all the benefits of being special patients than the control group, however some of the control group had excellent care but had no hormone therapy. We concede our hormone treated patients did have better overall care than the average control patient, but we also maintain that the results exceeded any difference in care.

Summary

1. This study is made to determine the pregnancy losses among normal women and the losses that can be expected from women who have previously aborted.
2. The patients who previously aborted include

TABLE IV
OBSTETRICAL PATIENTS DELIVERING BABIES L. & W. ACCORDING TO NUMBER OF PREVIOUS ABORTIONS

	<i>Norlutin</i>		<i>Delalutin</i>		<i>Enovid</i>	
	NO. OF PATIENTS	BABIES L. & W.	NO. OF PATIENTS	BABIES L. & W.	NO. OF PATIENTS	BABIES L. & W.
Total patients	40	20 50%	66	42 63.6%	61	48 78.7%
One previous Ab.	17	6 36%	29	20 65 %	25	20 80 %
Two previous Abs.	15	8 53%	27	14 52 %	21	16 76 %
Three previous Abs.	4	4 100%	8	6 75 %	9	8 88 %
Four previous Abs.	1	1 100%	1	1 100 %	3	2 66 %
Five previous Abs.	1	1 100%	1	1 100 %	2	2 100 %
Six previous Abs.	1	0	0		1	0
Seven previous Abs.	1	0	0		0	

TABLE V
FETAL SALVAGE IN PATIENTS WITH ABOUT TWO PREVIOUS ABORTIONS

	<i>Norlutin</i>	<i>Delalutin</i>	<i>Enovid</i>	<i>Controls</i>
Total patients	40	66	61	80
Average previous abortions	2.1	1.8	2.1	2.0
Fetal salvage	20 50%	42 63.6%	48 78.7%	25 31.2%

two groups: one treated with hormones and the other treated without hormones.

3. The control group of 5,507 had a fetal salvage of 87.6 per cent: 10.4 per cent abortions up to 22 weeks and two per cent fetal loss in the last part of pregnancy.

4. The abortion and fetal loss rate increases from 9.3 per cent to 21.6 per cent to 68.8 per cent to 92 per cent with each additional previous pregnancy loss. The fetal loss in the last 4 months of gestation increases from 1.8 per cent to 2.7 per cent to 6.2 per cent with each additional previous abortion.

5. The study gives the results of patients previously aborted who were treated with Norlutin, Delalutin, and Enovid.

6. All three progesterone-like hormones are excellent in preventing abortion. In our series Enovid is superior in the last half of pregnancy.

7. The fetal salvage is greatly improved in the hormone treated groups, compared to the control group.

8. Complications and side effects were very low in women treated with progesterone-like hormones. One hormone caused transitory masculinizing effect in the mothers and enlargement of the clitoris in two female infants.

9. Bed rest, sedation, assurance are necessary additions to the hormones treatment.

10. The results using progesterone-like drugs in

previous aborters is sufficiently valuable to warrant its further use by us.

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Conduction Time

Accelerated Auriculoventricular Conduction In Psychiatric Patients

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ACCELERATED AURICULOVENTRICULAR conduction was observed more frequently in psychiatric patients than in the general hospital population. These cases showed a constant P-R interval of .12 sec. or less with a normal QRS duration. These tracings obviously did not represent the classic type of Wolff-Parkinson-White syndrome.

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Patients hospitalized for psychiatric treatment appear to have an accelerated AV conduction and hazard severe tachycardia—at times fatal—following electro-shock therapy.

It is a well known fact that the AV node normally delays the transmission of the impulse from the auri-

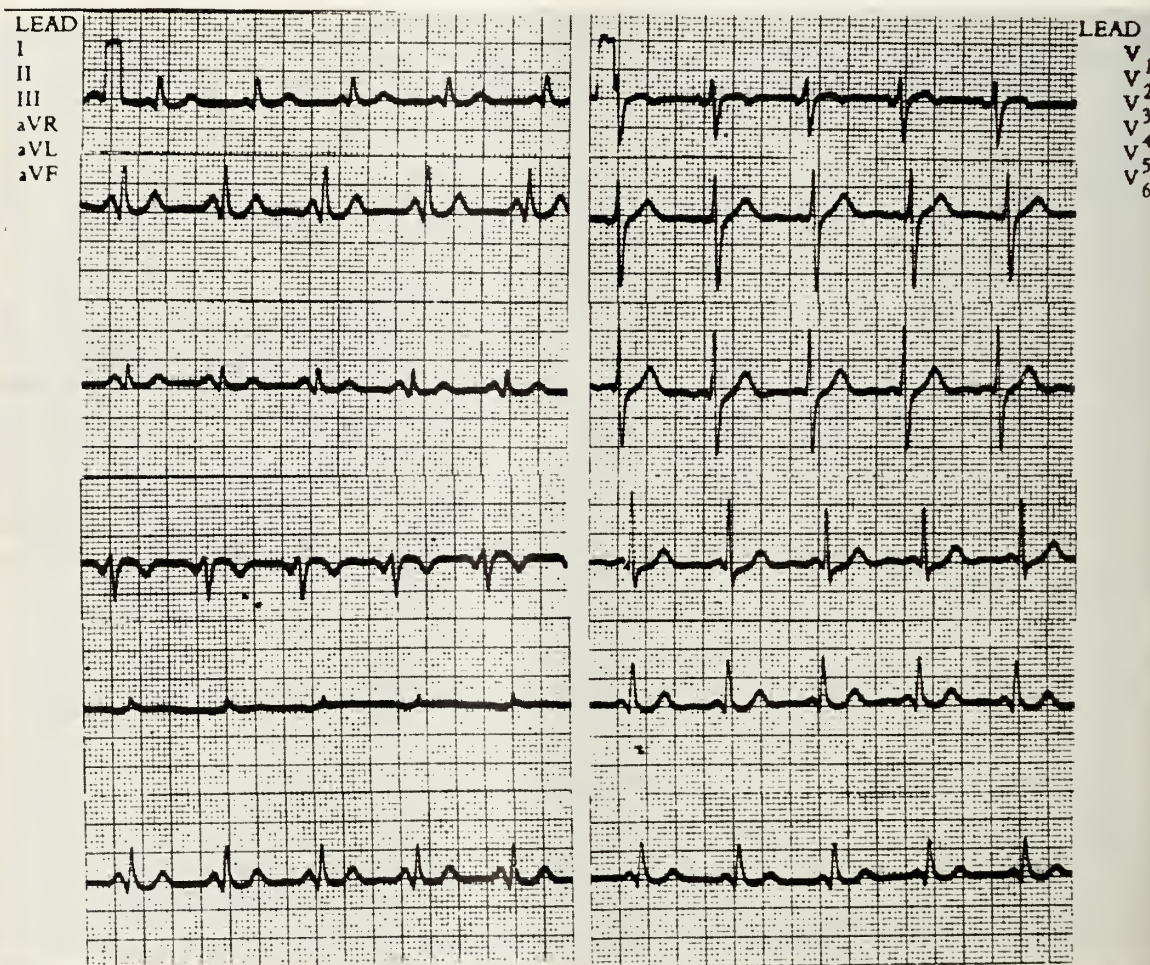


Figure 1. Case 1. P-R interval .12 sec. or less. QRS interval normal. Accelerated AV conduction. The isoelectric component of the P-R interval is absent.



Figure 2. Case 1. Paroxysmal auricular tachycardia after electric shock treatment.

cle to the ventricle. The short P-R interval in the cases under discussion was due to the absence of the isoelectric segment that usually follows the P wave. The configuration of the P waves and their duration was essentially within normal limits. This would indicate that the AV node permitted an unusually fast conduction. This would be differentiated from the Wolff-Parkinson-White syndrome where an accessory Bundle (Bundle of Kent) is responsible for the short P-R interval and is followed by a widening of the QRS complexes. All of these cases showed a normal QRS conduction time.

Why this phenomenon should appear so much more frequently in psychiatric patients is open to speculation at this time. The variation of the vago-sympathetic tone is perhaps responsible in some cases. Hypothalamic and drug induced sympathetic stimulation results in relative shortening of the P-R interval. Of one hundred patients successively admitted to the psychiatric department twenty showed this accelerated

AV conduction, while of the same number of patients admitted to the general hospital for general care, only five per cent revealed this electrocardiographic finding. The diagnosis in the twenty admitted psychiatric cases showed ten with manic depressive psychosis, five with schizophrenia and five with chronic alcoholism.

The importance of this observation becomes more apparent if one realizes that approximately 50 per cent of these patients developed paroxysmal tachycardia after electric shock therapy. Most of the paroxysms were auricular in type, but occasionally a ventricular tachycardia was observed. As a rule these paroxysms were either self-limited or could successfully be controlled with appropriate medication, but two patients succumbed during one of these attacks.

Case 1

This was a 64-year-old man who was hospitalized in the psychiatric ward and scheduled for electric

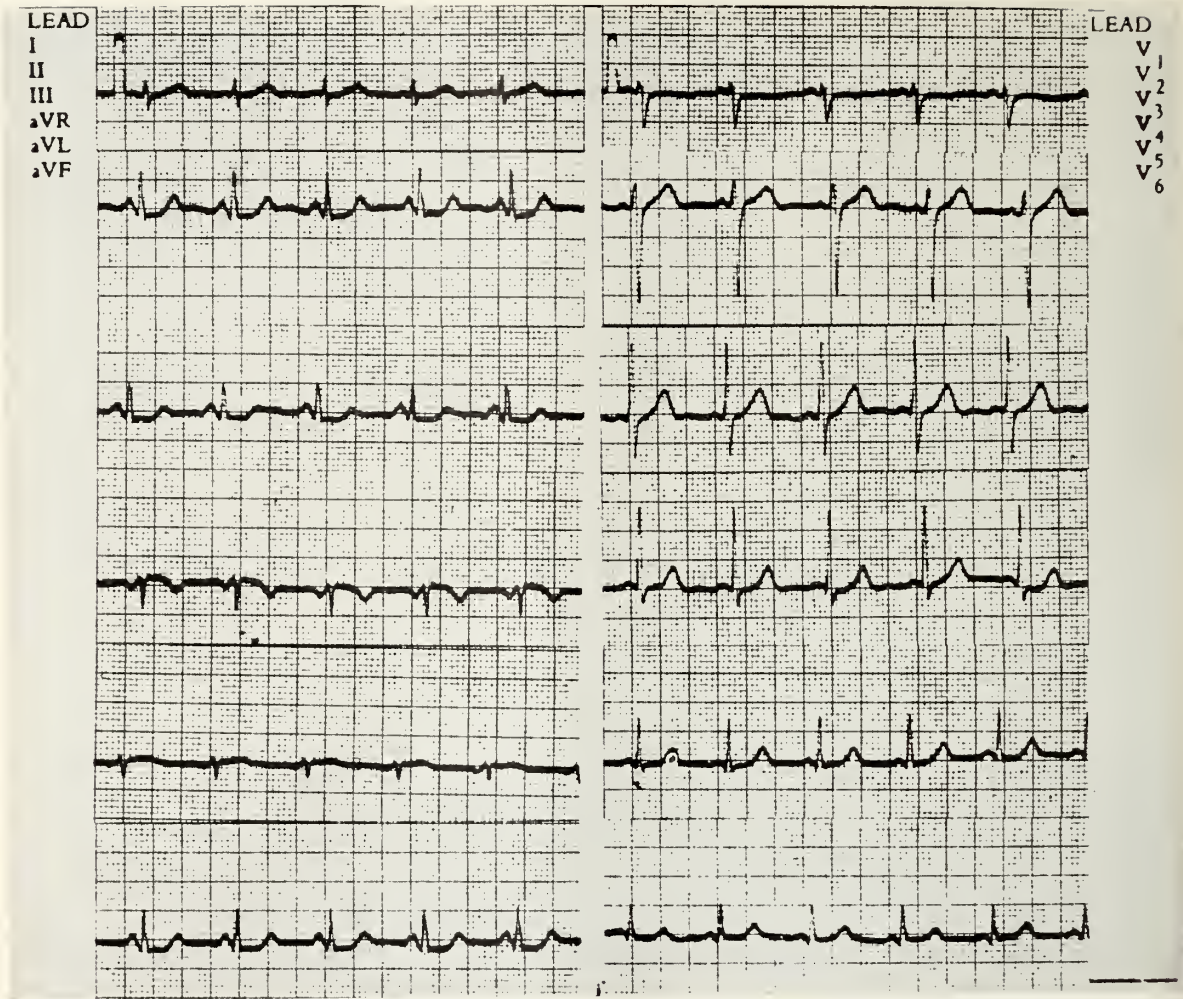


Figure 3. Case 2. P-R interval .12 sec. or less. QRS interval normal. The isoelectric component of the PR interval is absent. Accelerated AV conduction time.

shock treatment. His pre-treatment electrocardiogram (Figure 1) shows a short P-R interval of .12 sec. or less. The isoelectric component of the P-R interval is absent. The P waves are of normal contour and of normal duration. The QRS interval is not prolonged. This, then is a typical pattern of an accelerated AV conduction time. After electric shock treatment the patient developed a paroxysmal auricular tachycardia (Figure 2) which apparently could not be controlled. The patient expired two days after this electrocardiogram was taken.

Case 2

A 70-year-old man was hospitalized and under psychiatric observation for severe depressive psychosis. The pre-treatment electrocardiogram (Figure 3) shows a short P-R interval of .12 sec. or less with a normal QRS interval. The isoelectric component of

the P-R interval is absent, suggesting accelerated conduction through the AV node. After electric shock therapy the patient developed ventricular tachycardia (Figure 4) which was rapidly fatal.

Summary and Conclusions

1. Accelerated AV conduction time is much more common in psychiatric patients as compared with the general hospital population.
2. The P-R interval in all patients was .12 sec. or less while the QRS interval was normal in all.
3. Fifty per cent of the patients observed developed paroxysmal tachycardia immediately after electric shock treatment or soon thereafter.
4. Two patients, one 64, the other 70, expired during one of these paroxysms.
5. It is suggested that psychiatric patients repre-

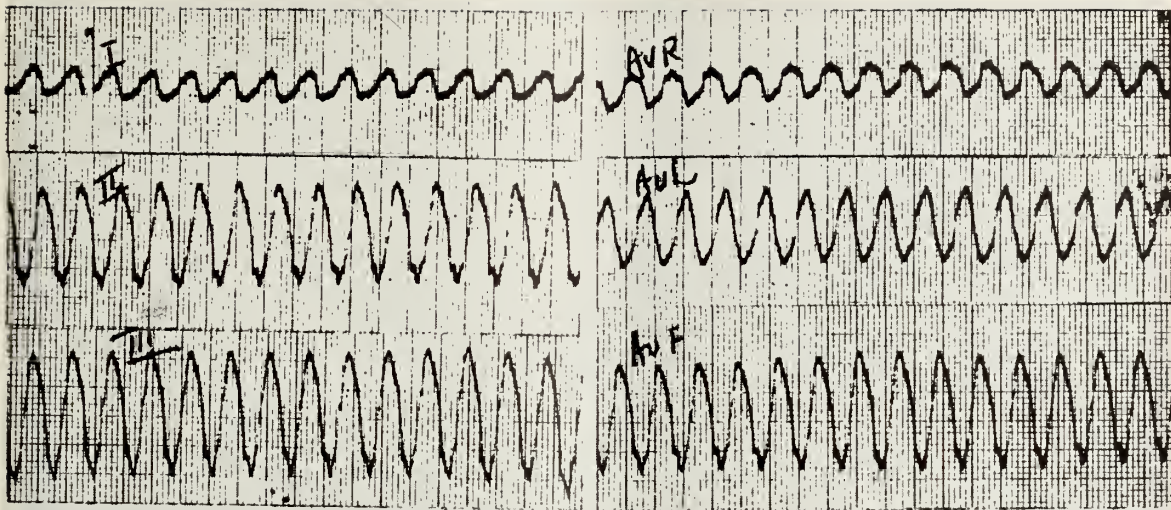


Figure 4. Case 2. Paroxysmal ventricular tachycardia occurring immediately after electric shock therapy.

senting accelerated AV conduction should receive prophylactic treatment prior to electric shock treatment (Quinidine, Pronestyl, Digitalis).

6. The etiology of the phenomenon discussed in

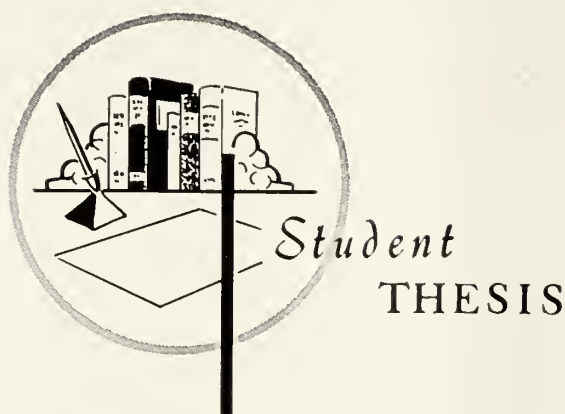
this paper is not clear. Variation of vagosympathetic tone, hypothalamic and drug induced sympathetic stimulation are perhaps some of the factors responsible.

FILM REVIEW—"WORKING TOGETHER"

One problem facing a great many persons today is that of institutional care, either for themselves in the future or for loved ones now or later. As life expectancy increases, more and more elderly persons swell the total population. Today, there are about 17 million men and women in the United States over 65; by 1970 the figure is expected to reach 20 million. Many of these people will spend their last years in a nursing home. The kind of care they receive, their happiness and health, is of concern to everyone.

Under sponsorship of the Nursing Home Program of the Division of Chronic Diseases, the Audiovisual Facility of the U. S. Public Health Service's Communicable Disease Center in Atlanta has produced a film showing how hospitals and nursing homes can work together to improve their services. Called "Working Together," this 20 minute, 16mm, color film portrays an actual operating agreement between the DeBoer Nursing Home and the Hackley Hospital in Muskegon, Michigan.

"Working Together" depicts the technical and supervisory help given to nursing homes by cooperating hospitals with a patient exchange program. Various institutional aspects, such as patient referral, administrative procedures, training of personnel, purchase and handling of medicine, are brought out in the film. Scenes in the nursing home and in the hospital show a number of functions involving the care and handling of patients: physical restoration, food preparation and service, safety precautions. Institutional housekeeping also comes in for attention, and such activities as sanitation, equipment maintenance, and record keeping are treated in the film.



Idiopathic Hemochromatosis

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History

TROUSSEAU GAVE the first clinical description of idiopathic hemochromatosis in a lecture on glycosuria in 1865. Six years later Troisier reported another case under the title of "La cirrhose pigmentaire dans la diabete sucre." Hanot and Schachmann referred to the disease as "bronzed diabetes" in 1886, but it was classically labelled "hemochromatosis" in 1889 by von Recklinghausen, who also described the iron-containing pigment, hemosiderin. Sheldon, in a classic monograph in 1935, reviewed the world's literature of 311 authentic cases and gave a detailed account of the historical background of the disease.

During the past decade there has been renewed interest in iron metabolism; considerable new data (primarily through the use of radioisotopes) has accumulated and has permitted a more comprehensive understanding of iron pathways. However, the questions remain: Does excessive iron which is introduced into the human body by transfusion or superabsorption produce the clinical and pathological manifestations of hemochromatosis, or are the massive body iron accumulations a result of a basically cirrhotic disease process and a secondary hemosiderosis?

Iron Metabolism

Distribution: Practically all of the body iron is bound to some kind of protein. A small portion is present as slightly soluble inorganic ferrous iron which dissociates to form free ferrous ions. This

small pool is the transfer medium and the point from which all iron compounds of the body originate. In this pool the undissociated iron is bound to the protein, transferrin, and is transported to the tissues as a transferrin-iron complex. The serum iron is a passive substance which does not influence iron absorption.

The storage form of iron consists of protein-bound ferric hydroxide units which comprise ferritin and hemosiderin. The protein in both compounds is apoferritin, but ferritin is the predominant form of storage iron in the normal human body. Some feel that hemosiderin may be a pathological stage of iron deposition, and it may be of significance that the proportion of ferric hydroxide polymers is increased from the normal 23 per cent to 35 per cent in hemosiderin—perhaps a protein conservation mechanism. Hemosiderin is the predominant storage iron in hemochromatosis.

The largest fraction of iron is chelated in the hemoglobin molecule and, with the exceptions of iron deficiency anemia and polycythemia, the hemoglobin-iron mass is relatively stable and not increased appreciably by increasing the total body iron.

Finally, there is a group of iron-pyrol-protein complexes such as myoglobin, catalase, and cytochrome which are quite stable in total mass.

The normal total body iron is 3 to 5 grams, of which 1,500 mg. to 3,000 mg. is in the erythrocytes, 1,000 to 1,500 mg. is storage iron, 100 to 300 mg. is in the tissue-iron complexes, and only 3 to 4 mg. is in plasma at any one time.

Absorption and Excretion: The ordinary daily diet contains about 15 mg. of iron and of this only about 1.5 mg. is absorbed. There is a daily loss in both sexes of about 1.0 mg. of iron, through desquamation, in

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Runnels is now serving internship at the Palo Alto-Stanford Center Hospital, Palo Alto, California.

the kidney, gastrointestinal tract, and skin. Females lose additional iron in normal menstruation. This is a net gain of 0.5 mg. per day, for iron excretion cannot increase except through hemorrhage or lactation. Thus iron is now regarded as a relatively "one way" substance which, once absorbed or injected in excess, cannot be excreted by a compensatory mechanism.

McCance and Widdowson, in 1937, suggested that the mucosa of the small intestine plays an active part in the regulation of iron absorption. In 1943 Hahn, et al., studied the influence of anemia, anoxia, and antecedent feeding on gastrointestinal radioiron absorption in dogs and postulated a "mucosal block." This inferred an alternate saturation and desaturation of an iron acceptor mechanism in the mucosal cell. Desaturation would take days, but saturation would occur in a matter of hours. Granick's studies of ferritin supported Hahn's mucosal block theory; he postulated that the block existed when the apoferritin in the mucosal cells was converted to ferritin. No more iron could then be absorbed until ferritin released its iron to the plasma. However, many feel that ferritin should be regarded less as a regulator of iron absorption than as a form of nontoxic storage iron in the mucosal cell. Chodos, et al., state, "the 'mucosal block' is only relatively complete and may not uniformly prevent the excessive accumulation of iron in the body."

Pathogenesis of Iron Excess

In the normal animal iron absorption may be modified. Increased absorption has been effected by the oral administration of large amounts of iron. Concomitant administration of large doses of ascorbic acid or other reducing agents, diets deficient in choline, protein, pyridoxine, and phosphate produce increased iron absorption. There is also increased absorption in the physiological states of pregnancy, growth, and menstruation.

The increased absorption in anemia is dependent upon the greater tissue need, not on the level of the serum iron. In iron deficiency anemia intestinal mucosal iron is decreased, and an increase in iron absorption occurs only until the hemoglobin reaches normal levels, with return then to a normal absorptive rate despite depleted total body iron stores.

In Bantu siderosis two causal factors for increased iron absorption have been suggested. It has been well documented that the Bantu has a habitually high dietary ferrous iron intake in the form of fermented beverages and through the extensive use of iron cooking utensils. *In vitro* studies have shown that the amount of iron taken up by liver slices from the iron-binding plasma protein is increased when the plasma iron level is high. The average plasma iron level is 229 microgram per cent in the apparently normal Bantu male, as compared with a level of 113 micro-

gram per cent in the South African white male. The Gillmans, on the other hand, have postulated that the increased absorption is the result of a widespread metabolic defect induced by chronic malnutrition. However, a recent study of Oettle presents evidence to indicate that the average Bantu diet is actually nutritionally adequate.

In idiopathic hemochromatosis there is increased tissue iron storage and increased mucosal iron, although mucosal iron content appears to have no effect on iron absorption. It is apparent that in this disease the "mucosal block" mechanism is impaired in some way. It has been suggested that the increased absorption may be due to a disturbance in the oxidative metabolism of the mucosal cell which would allow iron to traverse the mucosal cell more readily. Radioactive iron studies by Bothwell and associates have demonstrated that a patient with hemochromatosis may absorb as much as 60 per cent of an oral dose of radioiron, whereas a normal person will absorb no more than 10 per cent. At this increased rate of absorption a daily net gain of 3.0 mg. of iron can be easily postulated. Since in most cases of overt hemochromatosis the total body iron ranges from 25 to 50 grams, it seems much more than coincidence that the majority of cases of idiopathic hemochromatosis become manifest only in adults.

Work by Finch, et al., with experimental animals demonstrated that during the initial phase of excessive iron absorption the plasma iron was increased, followed by an increased iron content in reticuloendothelial tissues. If iron loading is discontinued at this early stage the plasma iron returns quickly to normal, but prolonged excessive absorption ultimately "saturates" the reticuloendothelial system and storage mechanisms of the liver with a resultant persistent elevation of plasma iron. In the apparently similar human situation, i.e., siderosis in the Bantu, the Gillmans and Bothwell and Bradlow have presented evidence that the initial hemosiderin deposits occur in the parenchymal cells of the liver. On the other hand, Higginson, Gerritsen, and Walker believe that reticuloendothelial involvement represents the earliest stage. It is of interest that in Bothwell and Bradlow's series there was a close correlation between the rise in concentrations of iron in the liver and in the spleen—as evidenced by the presence of hemosiderin granules, while Higginson, Gerritsen, and Walker regarded a diffuse blue flush in the Kupffer cells as indicative of reticuloendothelial involvement in the liver from the beginning. It must be concluded that in the pathological state neither the true initial deposition of excessive iron nor the limits of normal and abnormal iron distribution are yet known.

Experimental attempts to produce the anatomical picture of hemochromatosis have been universally unsuccessful. Dubin summarizes the evidence for and

against the toxicity of iron: (1) Ferrous sulfate, dissociable and in large amounts, can be absorbed and produce a profound metabolic acidosis and death in man and animals—but there is little free ferrous ion in plasma in hemochromatosis; (2) Ferrous sulfate inhibits phosphorylation in brain homogenates, and some iron compounds can produce liver and adrenal cortical damage in animals; (3) Finally, repeated phlebotomy has improved the condition of hemochromatotic patients. Against iron toxicity is the fact that massive parenteral iron overloading of animals fails to produce tissue fibrosis, even with observation as long as four years, although there are huge accumulations of tissue iron. Dubin points out that in hemochromatosis there are many tissues that are heavily infiltrated with iron, yet they are functionally and structurally free of damage. He concludes that there is a basic metabolic error in hemochromatosis that leads to fibrosis of the liver and pancreas, and that the massive iron accumulations play a secondary or additive role in the overall tissue damage.

In neither transfusion siderosis nor Bantu siderosis has there been agreement among various workers concerning a correlation between iron content and pancreatic or hepatic fibrosis. In 1945 the Gillmans concluded that although cirrhosis and advanced siderosis were common associated findings there was no causal relationship, because cirrhosis was present in livers with all stages of siderosis. In 1953 Higginson, Gerritsen, and Walker concurred, but in 1957 Higginson, Grobelaar, and Walker reported from a study of 876 consecutive Bantu necropsies that there was a definite correlation between siderosis and the more severe degrees of diffuse portal fibrosis. In Bothwell and Bradlow's series of 147 liver specimens from Bantu subjects who died acute traumatic deaths, all those with iron concentrations over 2.0 grams dry weight showed either portal fibrosis or cirrhosis. Certainly, the recent studies do indicate that there is a significant relationship between Bantu siderosis and portal fibrosis or cirrhosis.

Finch and Finch, on the other hand, feel that all experimental studies to date have been inadequate as to the time or amount of iron administered. They cite numerous cases of transfusion siderosis in which they feel that many of the manifestations of hemochromatosis are duplicated. Some patients show clinical hepatic, pancreatic, or cardiac insufficiency; the originally loaded reticuloendothelial tissues such as spleen and lung show fibrosis; and in some patients with massive transfusion therapy the pathological differentiation between transfusion siderosis and idiopathic hemochromatosis was "impossible." They qualify: "It is admitted that anemia, serum hepatitis, and the effects of the underlying hematological disease are complicating features which might contribute to or even produce some of these tissue changes." But they

conclude, unlike Dubin, that: "... in view of the clinical and pathological similarities between transfusion and idiopathic hemochromatosis, the conclusion seems inescapable that iron is the common denominator in the production of tissue damage."

Clinicopathological Manifestations

The classical triad of idiopathic hemochromatosis is cirrhosis, diabetes, and skin pigmentation. Finch and Finch add cardiac disease to make a clinical tetrad, since almost one-third of patients die with cardiac failure. Hemochromatosis is generally believed to be a rare disease which is recognized once in approximately 20,000 hospital admissions and once in 7,000 hospital deaths. There is a male predominance of about 10:1, and nearly 85 per cent of these patients develop their first symptoms between 35 and 60 years of age. Finch and Finch noted that in about 50 per cent of their female patients there was a history of scanty or absent menstrual flow. The overt disease is practically unknown before the age of 20. Most authors conclude with Dubin that "at times" there is a familial incidence of the disease.

The symptomatic phase of hemochromatosis usually begins with complaints such as weakness, lassitude, weight loss, a change in skin color, abdominal pain (especially in the aged), shortness of breath, or a loss of libido. The liver is the first organ to be deranged. Hepatomegaly has been noted in 93 per cent of cases, even though the patient may have no major symptoms and laboratory tests of hepatic function be normal. There may be, in decreasing order of frequency, cutaneous pigmentation—especially of the exposed parts (75 per cent), spider angiomas, splenomegaly (50 per cent), ascites (terminally in about 20 per cent), congestive failure, cardiac arrhythmias, sparse body hair, testicular atrophy, rarely jaundice, and more rarely, hypertension.

The liver is enlarged in almost all cases and presents a smooth, non-tender, firm surface, although at autopsy there is a fine nodularity and pigmentation described by Sheldon as "rusty" or "ochre." Dubin states that the cirrhosis resembles the portal type, except that the nodules are characteristically larger, more irregular, and with thicker fibrous bands. The hepatic cellular structure is usually normal except for the deposition of hemosiderin. There may also be fatty metamorphosis, but he associates this to "an alcoholic bout or to a terminal episode of nutritional imbalance." He believes that in hemochromatosis the hemosiderin is located chiefly in parenchymal cells.

According to Finch and Finch about 82 per cent of these patients develop diabetes mellitus. It should be remembered that this may be the diabetes of pancreatic insufficiency or the "pseudodiabetes" of liver disease. In most cases the diabetes is not of long duration and, consequently, the late degenerative

changes are not prominent—which probably explains the reported absence of intercapillary glomerulosclerosis and retinopathy. However, Becker and Miller have recently reported diabetic glomerulosclerosis in hemochromatotic patients. Before the advent of insulin, diabetic coma accounted for the demise of about 50 per cent of these patients, but today this complication seldom leads to death. As with ordinary diabetes mellitus the pathological changes of the pancreatic tissue in hemochromatosis sometimes do not correlate well with the clinical manifestations. There is no reason to suppose that the diabetes in this disease is characteristic in any way, except that usually the pancreatic fibrosis is accompanied by varying degrees of iron deposition.

Although Sheldon stated that the incidence of hepatoma was no higher in hemochromatosis than in cirrhosis, other authors have emphasized a much higher incidence of neoplasm in the former disease.

Severe portal hypertension and esophageal varices are seen less frequently in hemochromatosis than in portal cirrhosis, and ascites is infrequent. The spleen is seldom more than twice the normal size. In fact, patients with hemochromatosis, according to Finch and Finch, seldom have the severe symptoms so characteristic of the alcoholic cirrhotic. This is probably because of the relatively normal diet and living habits of the former. The hemochromatotic course is usually a gradual, inexorable progression (if uncomplicated by cardiac failure, infection or hepatoma) without exacerbation to hepatic failure.

The characteristic pigmentation of hemochromatosis is not always due to iron deposition, for hemosiderin is demonstrated on skin biopsy in only half of the cases. Finch and Finch state that the hyperpigmentation in most cases is the result of cutaneous melanin deposition—present in 90 per cent of patients at the time the diagnosis is established. There is usually a generalized distribution with some emphasis on the face, neck, dorsal parts of the extremities, genitalia, and in scars. The genesis of the melanosis is obscure. Many authors have suggested a deficiency in the pituitary-adrenal axis, but most adrenal function studies have been within normal ranges or comparable to levels found in Laennec's cirrhosis. There are several reports of extensive fibrosis and iron deposition in the pituitary with associated dysfunction, the significance of which is not established.

Heilmeyer found that 80 to 90 per cent of these patients suffer some cardiac disturbance, and Demulder states that the deposition of hemosiderin and resulting myocardial fibrosis are the causes. Dubin, however, points out that insulin therapy has allowed patients to reach the age where cardiovascular disease is simply more prevalent. Finch and Finch say, “. . .

failure rarely is found without muscle hemosiderosis, and it is very probable that the associated tissue changes are secondary to the presence of hemosiderin deposits.” These authors also emphasize the predominance of cardiac failure in the younger subjects and state that about one-third of patients with hemochromatosis die with cardiac failure. Disturbances of cardiac rhythm are the most common clinical manifestations with premature ventricular contractions, paroxysmal atrial tachycardias, atrial fibrillation and flutter, A-V blocks of varying degree, paroxysmal ventricular tachycardias, and gallop rhythms encountered. Electrocardiographic changes are low voltage, nonspecific T wave changes, and left axis deviation. There is a striking predominance of right-sided failure. Swann and Dewar reviewed the literature and stated that in all cases in which cardiac symptoms were prominent there were extensive changes in cardiac muscle with pigment granules, muscle necrosis, and fibrosis. They believe that these are mechanical changes secondary to the myocardial iron deposition and are not due to endocrine dysfunction. Levin and Galum noted extensive fatty degeneration without fibrosis in hemochromatotic hearts and concluded that the fatty degeneration was the cause of the congestive heart failure seen clinically. Dubin cites the average weight of the heart in an AFIP study of 21 cases of hemochromatosis as 508 grams, and the cardiac iron content was increased by 13 times. The cardiac failure is characteristically refractory to treatment.

Demulder states that hypogonadism is present in 50 per cent of cases of hemochromatosis and attributes testicular atrophy to pituitary insufficiency, since hemochromatosis of the testicles is unusual. He also attributes adrenal insufficiency and hypothyroidism, which are occasionally seen in these patients, to pituitary insufficiency, because the adrenals may degenerate without obvious anatomical involvement by the disease.

Finch and Finch emphasize the absence of significant hematologic involvement with normal indices, erythropoiesis, and erythrolysis. Except for excessive iron deposition the bone marrow appears quite normal. Reticulocyte, fecal urobilinogen, and serum bilirubin levels are usually within normal limits. A macrocytic anemia may occur and is felt most likely to be secondary to cirrhosis.

Diagnosis

Finch and Finch state that the only definitive test for the presence of an iron storage disease is liver biopsy, but caution that differentiation from other forms of iron storage disorder may be impossible. Dubin, however, feels that the combination of hepatomegaly and a characteristic amount and distribution

of hemosiderin in parenchymal cells leads to accurate diagnoses of hemochromatosis.

Other presumptive tests include bone marrow, skin, and gastric biopsy, the finding of hemosiderin deposits in prostatic secretions and urinary sediment, increased liver density by x-ray, the rate of enteric absorption of radioactive iron, and the intravenous iron tolerance test.

Althausen, et al., found gastric mucosal biopsy much more helpful than skin biopsy, with 100 per cent positive findings in the former as compared with only 54 per cent in the latter.

Bothwell, et al., and Granick separately found that radioiron absorption is increased in hemochromatosis, as have most other workers, although Chodos and Ross obtained normal values.

Gitlow, Beyers, and Colmore have used the intravenous iron tolerance test to determine the total plasma iron-binding capacity. The difference between the fasting level and the five-minute level (increase), and the drop from the five-minute level to the 120-minute level (decrease), with the ratio of decrease/increase is believed to represent the relative uptake of iron by the tissues. In hemochromatosis and cirrhosis the TIBC is low, but in hemochromatosis the fasting level of serum iron is high, while in cirrhosis the level is normal or low. The increased ratio in hemochromatosis is nearly eight-fold, compared with cirrhosis of other causes. Dubin feels that this test may become a useful diagnostic procedure, although as yet it has not received wide clinical acceptance.

In the absence of concurrent infection or neoplasm Finch and Finch believe that all cases of idiopathic hemochromatosis should manifest an elevated plasma iron, with concentrations over 200 microgram per cent almost invariably indicating the presence of the disease. This is the most valuable presumptive diagnostic test in early hemochromatosis.

The demonstration of a normal hematocrit despite repeated phlebotomy is considered by Finch and Finch to be a confirmatory test for the demonstration of increased tissue iron stores. Weekly phlebotomy in the normal person will produce anemia after about seven weeks. Finch and Finch feel that increased iron storage has been demonstrated if 10 consecutive weeks of 500 cc. phlebotomies does not depress the hematocrit by more than 25 per cent.

Treatment

The treatment of idiopathic hemochromatosis is directed toward removal of the excess tissue iron. This is effected primarily by phlebotomy. Balfour, et al., in 1942 made the first recorded attempts to remove excess iron by phlebotomy. In 1947 Finch attempted a therapeutic phlebotomy program and observed an excellent hematologic response. There are now many favorable reports in the literature con-

cerning this method. Weekly 500 cc. phlebotomies will remove from 10 to 13 grams of iron in a year. Since the average hemochromatotic contains in excess of 25 grams of iron, about two years is necessary to reduce iron stores to normal levels. Finch and Finch recommend weekly hematocrits, monthly serum iron determinations, an initial liver biopsy for direct morphologic evidence of the status of the liver and its iron stores, and another liver biopsy when the iron stores are completely depleted to verify this depletion. After the iron stores are completely exhausted phlebotomy is performed every one to three months, or as indicated by hematologic response.

Finch and Finch condemn dietary adjuvants and warn against the development of hypoproteinemia, ascites, and edema in the alcoholic patient, although these are very uncommon results of venesection. Some authors have used chelating agents such as ethylenediaminetetracetic acid and its derivatives, but McMahon concludes, after comparing the results of three such congeners of EDTA on the urinary excretion of iron, that their usefulness is limited to the rare case of hemochromatosis with severe refractory anemia.

In 1953 Davis and Arrowsmith summarized the world's experience with massive venesection—30 cases, of which 90 per cent showed marked over-all clinical and laboratory improvement. MacGregor and Ramsay in 1957 followed six patients who were undergoing venesection for hemochromatosis with weekly determinations of serum iron and total iron-binding capacity, and found that development of anemia was always preceded by a fall in the serum iron level and an increase in the TIBC. They then interrupted therapy and in most cases phlebotomized no more than three to four times a year—when the serum iron returned to a high level and the TIBC again became nearly saturated.

The favorable results of venesection in hemochromatosis are well emphasized in McAllen, Coghill, and Lubran's cases in which all 17 expressed feelings of well-being and demonstrated marked decrease in liver size, decrease or disappearance of the abnormal skin pigmentation, and marked decrease or total disappearance of stainable iron on serial liver biopsy. Those patients with diabetes became more stable and required less insulin. One patient in severe congestive heart failure recovered and had not again decompensated within the three years of observation. Liver excretion, as determined by bromsulphalein retention, when impaired, showed uniform improvement to normal values after massive venesection. In no case has a protein deficiency developed. In many instances the total protein has increased and the albumin/globulin ratio has improved. In no case has a severe or refractory anemia developed as a result of massive venesection.

Discussion

Several theories have been proposed to explain the origin and mechanism of this disease.

One of the earliest theories to be advanced was that diabetes was the basic disease process. In 1885 Letulle propounded the idea that hyperglycemia led to hemolysis and the deposition of pigment. Hanot in 1896 thought that the liver changes could be a direct result of a diabetic endarteritis. In 1917 McCreery pointed out that there is no increase in iron storage in ordinary diabetes, and Sheldon emphasized that diabetes is not a constant factor in hemochromatosis.

Another early theory was that the disease was a result of a primary alteration of the blood which included local hemorrhage, intravascular hemolysis, or hemolysis in parenchymatous cells. Von Recklinghausen in 1889, Opie in 1899, and Preiswerk in 1905 felt that there were local capillary hemorrhages, perhaps associating the terminal purpuric lesions so common in severe liver disease with the general pathologic process. Acard advanced the theory that hemoglobin was the most likely source for the iron deposits, through the mechanism of intravascular hemolysis. Chalié and Nove-Josserand in 1911 demonstrated increased erythrocyte fragility and hypersplenism in their patients. As late as 1933 Fiessinger and Arnaudet reported increased red cell fragility to saline, findings which, however, could not be confirmed by other contemporary workers. In 1897 Jeanselme and Papillon first advocated that there was increased hemolysis in parenchymatous capillaries; Rossle in 1907 maintained that intracellular erythrocyte phagocytosis was the essence of the disease and restated this position in 1930. The major argument against hemolysis in hemochromatosis was advanced in 1914 by Muir and Shaw Dunn as they pointed out the lack of anemia or evidence of increased hematopoiesis in hemochromatosis, and the difference in iron deposition following hemolysis in cases of hemosiderosis. Sheldon observed, in addition, that there was no increased bilirubin in the serum or urobilinogen in the urine in hemochromatosis. Recent evidence corroborates the view that hemolysis plays no role in idiopathic hemochromatosis. In fact, the presence of anemia strongly rules against such a diagnosis.

As outlined by Sheldon, another theory concerned the possible role of bacterial, metallic, alcoholic, or other unknown toxins. A controversy arose in the 1920's over F. B. Mallory's claim that hemochromatosis was due to chronic copper poisoning. They found pigment granules with an affinity for basic fuchsin after having fed rabbits copper acetate for a year and producing cirrhosis in most of the animals. Mills, however, reported a study in which brass utensils were extensively used to prepare acidic foods and found no evidence of hemochromatosis. Askanazy

stressed the fact that the liver has an increased copper content in portal cirrhosis. Schonheimer and Oshima proved that the hemochromatotic liver has an elevated copper content, agreed with Mallory that there was relationship between copper and hemochromatosis, but stated: "The assumption that copper plays the sole determining role in hemochromatosis is confirmed neither by experiment nor by our analyses." Flinn and von Glahn and Polson in 1929 were unable to reproduce Mallory's findings. In 1930 Schoenheimer and Herkel found that increased amounts of copper were found in both portal cirrhosis and in hemochromatosis—in the liver—but also found increased copper in most of the other tissues in hemochromatosis.

In Sheldon's series there was a 25 per cent incidence of excessive alcoholic intake. He felt that the fact that hemochromatosis developed in the absence of an alcoholic history in the majority of cases was ample reason to exclude alcohol as a direct etiologic agent. He did, though, feel it possible, "that misuse of alcohol may accelerate the disease in view of its capacity for producing portal cirrhosis." MacDonald and Mallory have recently implicated alcohol as a major etiologic factor through their theory that idiopathic hemochromatosis is, in fact, merely a variant of Laennec's cirrhosis—all secondary to nutritional factors. It should be noted that these authors have reported an incidence of hemochromatosis on one in every 800 hospital admissions, more than 20 times as frequent as any of the many previous surveys. This may be due to inclusion of what most authors have considered a different entity, hemosiderosis.

Sprunt in 1911 was the first to conclude that this disease was due to an abnormality of intracellular metabolism. Hueck in 1921 also felt that the cells were unable to deal normally with iron and delineated acutely between siderosis, with its involvement of the reticuloendothelial system, and hemochromatosis with its more generalized epithelial involvement. Efforts to implicate the kidneys (abnormal excretion of iron) were not rewarding. Garrod suggested in 1914 that the retention of iron was due to tissue ferrophily. Sheldon favored this theory and contended that there was a strong possibility that, as Rendu and de Massary had thought in 1897, the iron pigmented those tissues with the highest rate of cellular metabolism.

The classic and most widely accepted theory regarding the etiology of "idiopathic" hemochromatosis is that proposed by Sheldon in 1935. He concluded that the disorder resulted from prolonged, gradual accumulation of iron. The increased tissue iron indicated an essential error of intracellular metabolism. Since the known cases of familial affliction were adequate indication that the disease was sometimes con-

genital in nature, he concluded that hemochromatosis was an inborn error of metabolism.

The work of Mazur, et al. on hepatic iron metabolism may offer some clues regarding the enzymatic defect involved. They found that the deposition of iron as ferritin and hemosiderin and the release of storage iron in the liver may depend upon the reaction: Ferric-disulfide-ferritin = Ferrous sulfhydryl ferritin. An equilibrium could exist between the micellar iron in the ferritin molecule and the small quantities of ionic iron at the surface. This equilibrium could be shifted by the action of a reducing agent such as glutathione. Glutathione could convert surface ferric iron to the ferrous form which is more transportable. Mazur suggests that glutathione is the active factor of the liver cell which allows the transfer of iron to plasma for combination with transferrin. Lochead and Goldberg have suggested that ascorbic acid, as well as reduced glutathione, acts in the transfer of iron from the proteins, ferritin and hemosiderin, in the liver for heme synthesis. No enzyme controlling the reduction of ferric-disulfide-ferritin to ferrous sulfhydryl ferritin by glutathione or ascorbic acid has yet been demonstrated, but an enzyme called glutathione synthetase, which catalyzes the synthesis of glutathione from glutamylcysteine and glycine, has been isolated from pigeon liver. If idiopathic hemochromatosis represented the simplest form of an inborn error of metabolism, a mutant form of the gene that controls glutathione synthetase could result in a somewhat different enzymatic molecule which would be unable to catalyze the synthesis of glutathione; ferritin and hemosiderin would accumulate in the liver as a result of the metabolic block. This is a fascinating but as yet unproved theory.

Hemochromatosis and Portal Cirrhosis

Considerable controversy has arisen regarding the role of the liver in this disorder. Simmonds in 1909 was the first to suggest that hemochromatosis was merely an exaggerated form of portal cirrhosis. Rous and Oliver in 1918 thought cirrhosis developed first, then the disturbance in iron metabolism. Sheldon observed that the age incidence and structure of the hepatic fibrosis were similar in portal cirrhosis and hemochromatosis, but that the sex incidence is very different. The liver is almost always enlarged and contains much more iron in hemochromatosis, and there is no generalized hemosiderosis of other tissues in portal cirrhosis. The incidence of diabetes mellitus is certainly less in portal cirrhosis. He cited the unsuccessful studies by Cappell, Polson, and Wallbach in which several attempts were made to produce cirrhosis by prolonged iron administration. More recent studies by Nissim and Wyatt and Howell in which massive overloading with parenteral iron in dogs, rats, and mice produced huge accumulations of iron

but no fibrosis of the tissues, suggests either that the necessary iron compound or combination has not yet been used or that iron itself simply has no tissue toxicity (with the exception of acute intoxication).

Castleman reported a case in 1946 which has been cited as evidence that in hemochromatosis cirrhosis is the antecedent process and hemosiderosis follows: In this patient liver biopsy four and one-half years before death showed cirrhosis. At autopsy the considerable amount of hemosiderin in the liver, pancreas, and lymph nodes led to a diagnosis of hemochromatosis. However, the liver weighed only 1,200 grams, and Dubin contends that this was most likely an example of ordinary portal cirrhosis with late development of abnormal iron metabolism. Dubin believes that several of the cases of hemochromatosis reported in the literature are, in reality, cirrhosis with superimposed hemosiderosis.

MacDonald has just recently reported a study in rats in which a choline-deficient diet which produced cirrhosis of the liver led to excess absorption of iron and deposition in many of the body tissues. The choline-deficient diet with added iron was then discontinued, and the rats were fed a normal diet for several weeks before sacrifice. Fat was mobilized from the liver, and a portal cirrhosis with hemosiderin deposits remained—" . . . analogous to that seen in human pigment cirrhosis." MacDonald interprets his findings: "The observations in this study are interpreted to support the concept that in human subjects, hemochromatosis and hemosiderosis are variants of one disease." This study has yet to be confirmed.

The final argument against the synonymy of idiopathic hemochromatosis and portal cirrhosis with hemosiderosis is the increasing body of evidence for the genetic transmission of an inborn error of iron metabolism in hemochromatosis. There are numerous reports in the literature concerning the familial occurrence of the disease. At first the relationship was noted only through a carefully recorded family history, but an increasing number of cases with autopsy confirmation have been recorded. Recently, liver biopsies and elevated serum iron values in family members have brought several cases to light. There have been numerous familial elevations of serum iron recorded. One of the most striking current studies is that of Bothwell, et al., in which 52 immediate relatives of six patients with hemochromatosis were examined. Serum iron levels were elevated in 11 subjects, of whom three were found to have hemochromatosis confirmed by liver biopsy, while five others evinced varying degrees of excess iron storage. In no instance did more than one parent show suggestive findings, but the authors present evidence that in each family examined there was a parent who was suspect. The findings in siblings were even more striking, and they conclude that about 50 per cent of the siblings

were affected in varying degree. Bothwell believes his data support Neel and Schull's genetic theory of hemochromatosis, i.e., that it is due to an autosomal gene of incomplete penetrance transmitted as a Mendelian dominant. Dillingham, in a report of four cases in siblings of normal parents, considers transmission by a recessive gene more likely. It has been suggested that the disease is not idiopathic, and that it would be better titled "familial hemochromatosis."

Conclusion

Although hemochromatosis has been recognized for a century, the etiology remains obscure. The rela-

tionship between Laennec's cirrhosis and hemochromatosis still is not clearly defined. The bulk of the evidence indicates that hemochromatosis is a separate disease entity, is familial, and probably is an inborn error of metabolism. Treatment with multiple venesections and the subsequent clinical and laboratory improvement in these patients is established. It is therefore quite important to recognize this disease, to treat it promptly, and to thoroughly investigate the family history and the family itself for the early manifestations of idiopathic hemochromatosis.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

LOW BACK PAIN

If a modification of the common sit-up exercises were adopted as a home exercise program by all adults in the United States, the current high incidence of low-back pain would be markedly reduced.

This is the opinion expressed by Major Frederick J. Sheffield, MC, U. S. Army, based on a two-year study of 889 patients with low back pain who were treated at Madigan General Hospital, Tacoma, Wash.

The Army back pain prevention program is directed toward general physical fitness, control of body weight, proper instruction in lifting and a specific abdominal exercise. Stress also is placed on the theory that the physician and therapist alone do not cure the patient. "Rather the patient who has low-back pain must be motivated with the desire to help himself by doing the proper exercises on a home program. This is to prevent recurrence of low-back pain," Dr. Sheffield said.

In the study group lumbar and lumbosacral strain was the commonest cause of low-back pain. And the author suggests that these findings in the military would be paralleled in an industrial population.

Crux of the Army program is a specific abdominal exercise. The routine consists of trunk raise exercise with knees and hips flexed 45°. "This is a modification of the common sit-up and was shown . . . to be the most effective method of improving abdominal muscle strength. Repetitions were gradually increased and the patient was instructed to perform 15 to 20 repetitions five times per week on his own after he was discharged. . . ."

The author emphasized that the abdominal muscles are the most neglected muscles in the body. "The fact that these muscles are not exercised sufficiently in adult life results in their relative weakness and the back loses the benefit of the normally strong supporter of the pelvis and the lower spine. . . . When these muscles are weak, resultant stress may be displayed posteriorly upon the articular facets and the posterior ligaments and muscles. This may precipitate the clinical picture of lumbosacral strain and nerve root compression syndrome."

In the second year of the study, 397 patients were treated as compared to 492 the previous year, an average 19 per cent reduction. The number of active duty patients was reduced 30 per cent.

Thus, as a result of the low-back pain prevention methods, there was a "substantial decrease in the number of persons seeking and requiring treatment." Dr. Sheffield suggests that a similar program might be considered in other military and civilian hospitals.

SHEFFIELD, F. J.: Low back pain—with an approach toward prevention, *Military Medicine* 127:232 (March) 1962.

The President's Message

DEAR DOCTOR:

Criticism increasingly challenges the medical profession. This criticism applies in both the destructive and constructive sense. The profession must respond with necessary measures in the areas indicated.

The constructive criticism strengthens the profession and advances its goals. The destructive criticism attempts to destroy our principles of free choice of physician and voluntary medical care. This provides us with the necessity of explaining the correctness of our principles and the reasons for sustaining them.

We must recognize the difference between our medical training and disciplines, and that of those in other areas. Thus, difficulty arises for us in understanding certain principles which they accept. For instance, the statement that it is not necessary for criticism to be valid provided the criticism successfully accomplishes its purpose. Another statement, that social programs proceed satisfactorily only when one realizes he must relinquish a measure of his freedom.

Our profession does not appreciate those assertions by individuals in high positions of government. The far-reaching significance of such conclusions gives rise for concern. Many moral issues become involved in statements of this type. It, therefore, becomes the duty of the individual physician to explain to his patients the necessity for the complete understanding of these expressions. Only their understanding will enable us to provide for their health and well being in the future.



Norton L. Francis M.D.

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Plans and Scopes

Norton L. Francis, President, appointed a new committee known as Plans and Scopes. Its purpose is to study all present facets of Society activity and to recommend for future consideration by the House of Delegates any changes that can improve the efficiency and the service of the Kansas Medical Society.

Over the years Society activity has developed on a piecemeal basis. Any program is adopted for which its originators can gain majority approval. Normal expansion in interest has quite naturally given this Society a bewildering variety of projects that far exceed the practical ability for accomplishment. At each meeting of the Society new ideas are added with little attention given toward how they can be implemented. As a result this Society is filled to overflowing with great intentions and often less than heroic achievement. Would it be better, some have asked, to define the areas within which this Society shall exert its effort and then seriously strive for accomplishment in a limited scope instead of hoping for everything and concluding only a fraction of its aims? If so, of what shall these areas of Society interest consist?

Should the Constitution and By-Laws be revised? Can the business of the Society be made more efficient? What of the Annual Sessions, can a changed format make these meetings more worthwhile? Are there neglected areas of service the Society could enter?

Questions of this type and many others are being asked by the Plans and Scopes Committee. They will study everything they can find concerning the Kansas Medical Society and will recommend changes intended to improve efficiency and service. This committee welcomes and requests suggestions from every member on how this can best be accomplished. Ideas are needed from all to insure the success of the project. Kindly send your thoughts to the Kansas Medical Society, 315 West 4th Street, Topeka, Kansas. All such correspondence will be presented to the

committee and each will be considered. With the help of the entire membership this can be the beginning of a new and infinitely more effective Kansas Medical Society. It will then become the Society each member wants it to be. But this can occur only to the degree that the members are willing to participate with the Plans and Scopes Committee in making the proper improvements.

Hospital Standards

The unpopularity of rules and regulations notwithstanding, few, if any, knowledgeable persons disapprove of the Joint Commission of Accreditation of Hospitals. Where criticism occurs it arises out of the occasional overemphasis upon minute and apparently insignificant requirements. The purpose for which the Joint Commission was organized, the value of its effort is so apparent that universal acceptance is obtained.

However, the Joint Commission is unable to adequately examine all hospitals and placed an arbitrary ruling into effect that a twenty-five bed hospital would be the smallest eligible institution for accreditation. This leaves approximately one-third of the 150 Kansas hospitals dependent upon the professional staff, the superintendent and the local board of trustees for standards. Quite understandably, they vary enough to have given many persons cause for concern.

During the past six years the Committee on Hospitals of the Kansas Medical Society has occupied its attention toward the development of a project that might establish, for the small hospitals in this state, a statement covering operational policy that might reasonably be adopted. It was known from the beginning that certain requirements of the Joint Commission would need to be relaxed but, in the interest of patient safety, others are of equal sig-

nificance whether the patient selects a large or small hospital for his care.

This program is now a reality. The Kansas Hospital Association and the Kansas Medical Society have each appointed four representatives to what is to be known as The Kansas Voluntary Council on Standards for Hospitals. Shortly they will invite the small hospitals of this state to adopt their recommended standards as a matter of official policy. It is hoped the professional staff, the superintendent and the board of trustees will find this project of aid to them in giving their patients the best possible care. When a hospital votes to accept these rules and regulations, the Council will present it with a certificate.

The rules and regulations are divided in two parts of which one relates to administration. Standards for safety, sanitation and personnel are defined. Under administration are such subjects as the keeping of records, nursing services, the drug room, and the governing body.

The second portion deals with professional staff regulations and says, in part, that not less than six physicians shall be on the staff of the hospital, that tissues recovered for pathological reasons shall be examined by a competent pathologist, that a second staff member shall be present whenever major surgery is performed and that a probationary period must be served by each future applicant to staff membership.

Whoever recognizes the value of the Joint Commission on Accreditation of Hospitals must certainly approve of this effort to aid the small hospitals in this state. The Kansas program is entirely voluntary but surely it will be welcomed.

When approved by those hospitals with less than 25 beds and when the larger hospitals are fully accredited by the Joint Commission, then the Kansas Medical Society and the Kansas Hospital Association can advise the people of this state that any hospital they select to enter will give them a standard of safe, effective care in keeping with the best presently known standards of service.

Such is the purpose of the Voluntary Council on Standards for Hospitals. It works in an area not presently covered and is another, and perhaps among the most significant, in a series of public service projects medicine is adopting to give the people of Kansas the finest quality of health care available anywhere.

Medical Assistants Circuit Courses

In 1962 more Kansas Medical Assistants will have attended Kansas University Extension Courses than ever before. This increased enrollment has been made possible through the circuit course concept so success-

fully utilized by the University of Kansas School of Medicine.

A total of 160 Kansas Medical Assistants attended the three circuit courses held early this year in Wichita, Hays and Parsons. Enrollees heard lectures on *Medical Ethics and Etiquette, Sterilization Procedures and Care of Equipment, Law and Economics in Medicine, Communication for Medical Assistants, and Credits and Collections.*

The Education Committee of the Kansas Medical Assistants Society, the University of Kansas Extension Department, and the Kansas Medical Society's Committee on Medical Assistants are now cooperating on a new circuit program to be held this summer and fall in Dodge City, July 21-22; Lawrence, August 18-19, and Wichita, September 8-9.

Subjects to be taken up in this series are: *Medical Insurance Forms, Medical Terminology, Laboratory Procedures, Office Psychology, Communication and Human Relations for Medical Assistants, Summary and Evaluation for Medical Assistants Circuit Course Program.*

A complete booklet containing the subject matter discussed will again be prepared for future reference and the enrollment fee will again be \$25 for the full course, or \$15 for one day.

Five Kansas physicians serving as guest lecturers have contributed a great deal to the program. Dr. E. W. Crow of Wichita participated in the first course. Drs. T. P. Butcher, Emporia; Leo P. Cawley, Wichita; Russell Eilers, K. U. Medical Center; and Bert Stofer, Wichita, will take part in the upcoming series.

Much of the program content is selected by the Kansas Medical Assistants themselves and every effort is made to make the material covered as useful to the medical assistant as possible.

Enrollment in this current series of courses will determine whether another program of this type will be held in 1963.

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Personalities—IN KANSAS MEDICINE

H. V. Bair, superintendent and medical director of the State Hospital and Training Center at Parsons, has been appointed to the American Psychiatric Association committee on certification of mental hospital administrators. He served on the board of examiners reviewing applications during the A.P.A. meeting in Toronto, Canada, in May.

Cloyce A. Newman has closed his office in Topeka and will begin duties as a full-time member of the Staff of Forbes Air Force Base Hospital's outpatient clinic on July 1.

"The Fifth Dimension" was the subject of **T. P. Butcher's** commencement address to the graduating class of the high school in Emporia, on May 24.

C. Arden Miller, dean of the University of Kansas School of Medicine, spoke at the meeting of the Crawford County Medical Society in May. His subject was "Bad Medicine for the Medical Schools."

The Brown County 4-H Health Day examinations were held in May at Hiawatha. Physicians in charge of the general physical examinations were **Ray Meidinger** and **DeWitt S. Lowe**, both of Hiawatha.

A free diagnostic clinic for crippled children of Cherokee County was held during the first part of June. The clinic was conducted by **L. O. Litton**, **C. L. Francisco**, **Phillip C. Nohe**, all of Kansas City, and **John F. Lance**, Wichita.

"Free enterprise has made this the healthiest nation on earth, and that's why we (the doctors) are opposing government welfare programs," **L. S. Nelson, Sr.**, Salina, told the Salina Rotary Club when he

spoke to that group at their May meeting. The subject of Dr. Nelson's talk was "Salina, a Medical Center."

A. M. Cherner, Hays, attended a meeting of the Sixth District Cancer Society held in Hot Springs, Arkansas, in May.

A Wichita pediatrician, **H. James Menehan**, has been elected a fellow of the American Academy of Pediatrics. Announcement of Dr. Menehan's election was made in May.

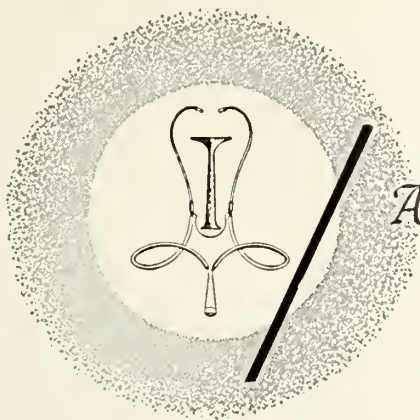
Physicians flew to Ottawa from Kansas, Missouri, Iowa, Oklahoma, and Nebraska to attend the National Mobilization Day for the Flying Physicians Association held in May. **L. N. Speer**, Ottawa, was in charge of arrangements for the fly-in, and **Robert O. Brown**, Atchison, is national president of the Flying Physicians.

H. G. Whittington, Lawrence, was recently appointed psychiatrist-director of the community health services program of the State Board of Social Welfare. Dr. Whittington was one of the panelists who spoke to general practitioners attending Physicians' Day at the Osawatomie State Hospital in May. Included on the panel were **George Zubowicz** and **W. O. Appenfeller**, both of Osawatomie.

C. L. Francisco, Kansas City, was a member of the panel discussing "Medicare" at the Club Presidents Round Table at the Town House Hotel in May.

Robert C. Polson, Great Bend, was recently appointed to the State Board of Health by Governor John Anderson, filling one of the existing vacancies on the board.

(Continued on page 311)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The recent organizational meeting of the Kansas Committee of the Association of American Physicians and Surgeons was held in Arkansas City June 7 and 8.

Approximately 40 physicians registered, and 120 guests heard Dr. George Hess, Bunker Hill, Illinois, speak on "Civilizations Also Die." Dr. Hess is national president of A.A.P.S.

Temporary officers were elected as follows: Chairman, Dr. Bruce Smith, Arkansas City; Vice-Chairman, Dr. C. R. Openshaw, Hutchinson; Secretary, Dr. R. F. Schneider, Kansas City; Treasurer, Dr. E. P. Carreau, Wichita; and Parliamentarian, Dr. Ward M. Cole, Wellington.

The next meeting will be in Wichita in September, 1962, at which time permanent officers will be elected.

The following scientific meetings will be held in the Seattle, Washington, area during the World's Fair.

September 16-19—73rd Annual Washington State Medical Association, Spokane

September 17-18—Annual Meeting—Washington State Society of Allergy, Spokane

September 24 }—Academy of General Practice, Seattle
October 22 }

August 8-11—American Society of Internal Medicine, Seattle

September 18—Washington State Society of Internal Medicine, Spokane

POSTGRADUATE COURSES AT UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE

August—Pediatric Electrocardiography

September—Management of Water, Sodium, Potassium Imbalances

September—Hand Injuries

Fall—Surgery and Early Detection of Disease

July 30-August 3—Endocrinology and Metabolism

Seattle Gynecological Society—3rd Wednesday September and October

Yakima Obstetrical and Gynecological Society—Last Monday September and October

Eye Study Club, Seattle—August 27, September 24, and October 22

Seattle Pediatric Society—3rd Friday April-September

Washington State Society of Pediatrics—September

Washington State Radiological Society—September 24 and October 22

Seattle Surgical Society—Last Monday August and September

Dr. Alfred E. Maumenee, Professor of Ophthalmology at Johns Hopkins University School of Medicine, Baltimore, Md., will be one of the guest speakers at the 95th Annual Meeting of the West Virginia State Medical Association at the Greenbriar Hotel, White Sulphur Springs, West Virginia, August 23-25.

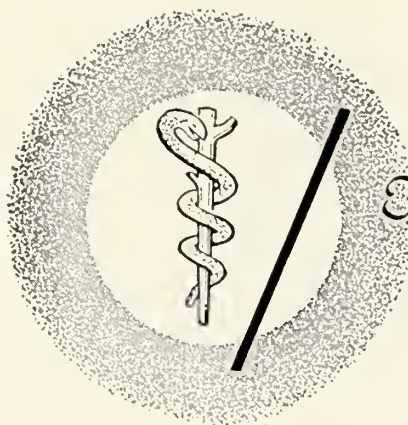
He will also speak before a session of the West Virginia Academy of Ophthalmology and Otolaryngology at their summer session on Friday afternoon, August 24.

For further information contact Mr. William Lively, Executive Secretary, West Virginia State Medical Association, Box 1031, Charleston 24, West Virginia.

The Department of Otolaryngology, University of Illinois College of Medicine, will conduct a postgraduate course in Laryngology and Bronchoesophagology from September 24 through October 6, 1962, under direction of Paul H. Holinger, M.D.

Registration will be limited to fifteen physicians who will receive instruction by means of animal demonstrations and practice in bronchoscopy and esoph-

(Continued on page 311)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

WASHINGTON SHALL LEAD US

The administration's medicare bill, another step to make Americans dependent on the federal government and train them to stop thinking and planning, will receive star billing in the forthcoming political campaign. Candidates in past campaigns have waged a war of promises in a panicky attempt to win an election and the medicare bill will share an esteemed place with other extravagant promises.

Medical care for the aged, plus all welfare programs, should be handled on the state level. State governments were established for such purposes. However more and more the federal government is grabbing the reins with broad programs that may apply in one area but are useless in another.

State officials, usually born and reared in the state they serve, know the resources and needs of their own section. A substantial and workable program of caring for the aged could be conducted from state capitals at a lower cost. But if the trend to allow the federal government to herd us like children continues, little will be needed in state governments except a janitor and someone to open the mail and turn off the lights.

Should each state be allowed to care for its own, medical and welfare money would cover more territory and cost the taxpayer less. State officials who are in close touch with their constituents wouldn't dare risk forcing a Washington-type program down the throats of the voters. They simply wouldn't have the nerve.

The voter is a long way from Washington and he seems to be getting further away all the time. The waste amazes him, the high-flung programs puzzle him and the cost angers him. Yet he is the only one who can stop all this nonsense.—A.M.—*El Dorado Times*, May 4, 1962.

MEDICARE DEBATE

The King-Anderson bill, backed by the Kennedy administration, would place medical care for the aged under the Social Security system and is limited to payment of hospital and nursing care bills.

It would be financed by an increase in Social Security payments one-quarter of one per cent by both employes and employers. The tax base for Social Security payments would be raised from \$4,800 to \$5,200.

The bill provides for hospital care for up to 90 days a year, but the patient would pay \$10 a day for the first nine days. Skilled nursing home care also would be paid for up to 180 days a year.

Out-patient diagnostic services such as x-rays and blood tests done at a hospital are covered under the bill, but there is a \$20 deductible charge for each such test.

Payment also would be made for visiting or intermittent nursing in the home for up to 240 visits a year.

The bill would pay no doctors' bills nor drug costs, except drugs administered while in a hospital. Anyone eligible for present Social Security payments would be eligible for the medical care payments.

By now it is a rather firmly established fact that the American Medical Association and most of its members are opposed to the King-Anderson bill. President Kennedy and his aides have attempted to capitalize on this with emotional rather than logical appeals—obviously aimed at those who think they are going to get a lot more from the bill than they really will.

The President spoke to a "loaded" Golden Age group of about 17,000 Sunday in Madison Square Garden in New York. It was more the approach of a

huckster at a medicine show—or a politician in an election year—than it was a clear and concise description of the plan.

There was far more evasion than evaluation—something all the combatants in this conflict have been guilty of up to now.

The President said at one point, in something of a desperation move to get backing for his bill: "I know that not a single doctor, if the bill is passed, is going to refuse to treat any patient."

This is not startling news. Doctors said this long before Kennedy decided to speak for them.

Kennedy made another foolish remark when he said: "They (the members of the medical profession) do not comprehend what we are trying to do."

There is every evidence the medical men have a good grasp of the situation. The mere fact they are opposing King-Anderson does not necessarily mean they do not understand it. It could well be that they know exactly what it will entail and simply are opposed to it.

So far the King-Anderson proponents appear to have dealt more in emotionalism than the opponents, and this may have more than a little to do with, as Kennedy said: "... the American Medical Association is doing very well in its effort to stop the bill." As one observer put it, "The President is being licked in rational debate."

While a good many elderly persons have spoken out in favor of the King-Anderson bill, there also are so-called "senior citizens" who do not think so much of the compulsory measure. Furthermore, one local woman called the other day and said she resents—and has heard from others who feel likewise—people in her age group being used as political pawns. "Right now we feel as though our welfare is the last concern of the backers of the bill, and that we are being exploited for purely political purposes," she remarked.

Hers is not an isolated view, by any means.

While it appears at this time that the King-Anderson bill is likely to be defeated in Congress, the situation is such that anything still can happen.

But perhaps the great benefit that will result from this battle is that private agencies will come forth with cheaper, more comprehensive and voluntary medicare plans that will make government roles unnecessary.

Such are far more in keeping with the way of life we aspire to, and if this occurs, all the debate will have served an excellent purpose.—*Lawrence Journal-World*, May 24, 1962.

Life, we learn too late, is in the living, in the tissue of every day and hour.—*Stephen Leacock*

Personalities

(Continued from page 308)

George Milbank, Wichita, was elected vice president of the Kansas Chapter of Arthritis and Rheumatism Foundation at their May meeting held in Wichita.

Glen M. McCray will leave Neodesha in July to accept a residency training post in psychiatry at the University of Kansas School of Medicine.

H. O. Marsh, Wichita, was re-elected Secretary-Treasurer of the Mid-Central Orthopedic Society.

Charles R. Jackson, Wichita, has an article in *The American Surgeon*, April 1962, entitled Gastrointestinal Perforation in the Newborn: Report of Four Cases Treated Surgically With Three Survivors.

Announcements

(Continued from page 309)

agoscopy, diagnostic and surgical clinics, as well as didactic lectures.

Interested registrants will please write directly to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

Occupational Medicine, a full-time course for physicians, will be given for eight weeks from September 17 through November 9, 1962 by the New York University Post-Graduate Medical School.

The course content covers the following areas: Preventive Medicine, including Epidemiology and Biostatistics, Administrative Medicine, Occupational Diseases, and Industrial Hygiene. It is aimed at meeting the need for specialized training in industrial medicine. Didactic instruction will be supplemented with field trips to industrial plants, governmental agencies concerned with industrial health and to union health centers. Opportunity will be given to attend medical, surgical, and clinical-pathological conferences held in the New York University Medical Center.

For further information write: Office of the Associate Dean, NYU Post-Graduate Medical School, 550 First Avenue, New York 16, N. Y.



CLINICAL OBSTETRICS, Tenney and Little. Saunders, 1961.

The authors have presented a fairly brief, concise review of the subject. They have added very little that is new to the literature of Obstetrics, and in the controversial areas only the viewpoint of the authors has been presented. It is too brief to be of much value as a reference text but should be handy for those wishing a quick review of a given problem. —N.H.O.

PROGESTERONE AND THE DEFENSE MECHANISM OF PREGNANCY, Ciba Foundation Study Group. Edited by Wolstenholme and Cameron. Little, Brown and Company, Boston, 1961. 103 pages. Price not given.

This small volume covers, in a surprisingly thorough way for its size, the basic mechanisms and regulation of uterine muscle activity. There are brief concise chapters on the biochemistry and physiology of uterine muscle contraction, as well as the production of progesterone in the placenta and its transfer to the fetus. Probably the most interesting portion of the whole book is the 24 page chapter of material presented by Dr. Arpad Csapo. His chapter reviews his many studies of the local and regional effects of progesterone on membrane potential, liminal stimulus and propagation of an excitation wave in the myometrium. No other single volume contains as much of his material as clearly organized and arranged as does this one. With experimental data, he clearly establishes and supports his concepts of the so-called progesterone block and the resultant functional asymmetry of the uterus. He has clearly demonstrated that progesterone raises the membrane potential of uterine muscle, and hence, the liminal stimulus required for contraction. He also documents the fact that progesterone decreases propagation of an excitation wave in the myometrium. By studies of propagation and membrane potential of uterine muscle strips taken from different parts of

the uterus, he clearly demonstrates that that portion underlying the placenta is clearly under a progesterone effect and is responsible for the asymmetrical functional activity of the organ. He sharply criticizes the "oxytocin theories" of Caldeyro-Barcia and dismisses them as Pascalian hydrodynamics that do not conform to the well established "all or none" law of muscle contraction.

Csapo's work is discussed from a clinical aspect by Dr. C. Scott Russell; and following his discussion, there is a lively debate between these gentlemen as to the clinical ramifications of the basic concepts outlined by Csapo.

This small volume is highly recommended. Being small, it can be carried in a coat pocket and should provide the physician with a rather broad insight into the mechanisms of uterine activity and an understanding of abnormal uterine activity on labor. To the more serious student of the uterus, it will provide a wealth of comprehensive information as well as numerous references for further study. It is only rarely that one finds a similar amount of valuable information in a volume of such small size.—J.C.W.

MEDICAL PHYSIOLOGY, Philip Bard, Editor. The C. V. Mosby Company, St. Louis, 1961. 1339 pages, \$16.50.

Through the years this publication, now in the eleventh edition, has been a standard text book to basic medical science. The eight contributing authors are a composite of recognized authorities in their respective field of research physiology. Such names as Gregerson, Lambertson, Mountcastle, Root and Robinson, as well as the editor, grace this edition. The acceptance of this text is credited to the editor's fundamental approach to basic physiology as well as his discussion of recent concepts.

This edition is especially heralded at this time in view of the tremendous progress in research since the previous edition five years ago. Many chapters

(Continued on page 318)

Annual Meeting

Officers Elected for Society and Specialty Groups

The 103rd annual meeting of the Kansas Medical Society was held at the Town House Hotel, Kansas City, on April 30 through May 2. Three hundred and thirty members of the Society attended the meeting. Also registered for the session or affiliate meetings were 65 guests, 160 members of the Woman's Auxiliary to the Kansas Medical Society, and approximately 100 members of the Kansas Medical Assistants Society.

Officers for 1962-63

President Norton L. Francis, Wichita
President-Elect H. St. Clair O'Donnell, Ellsworth
Immediate Past President F. E. Wrightman, Sabetha
First Vice-President John C. Mitchell, Salina
Second Vice-President George E. Burket, Jr., Kingman
Secretary Leland Speer, Kansas City
Treasurer John L. Lattimore, Topeka
A.M.A. Delegate George F. Gsell, Wichita
A.M.A. Delegate Lucien R. Pyle, Topeka
A.M.A. Alternate W. J. Reals, Wichita
A.M.A. Alternate Glenn R. Peters, Kansas City
Chairman of Editorial Board Orville R. Clark, Topeka

Councilors for 1962-63

District 1 Emerson D. Yoder, Denton
District 2 J. W. Manley, Kansas City
District 3 George R. Maser, Mission
District 4 Dick B. McKee, Pittsburg
District 5 Ralph G. Ball, Manhattan
District 6 F. T. Collins, Topeka
District 7 J. L. Morgan, Emporia
District 8 J. Gordon Claypool, Howard
District 9 L. S. Nelson, Jr., Salina
District 10 John N. Blank, Hutchinson
District 11 William J. Reals, Wichita
District 12 L. W. Patzkowsky, Kiowa
District 13 A. M. Cherner, Hays
District 14 Clair J. Cavanaugh, Great Bend
District 15 Evan R. Williams, Dodge City
District 16 Edward F. Steichen, Lenora
District 17 John O. Austin, Garden City

Editorial Board

Chairman of Board and Editor—Orville R. Clark, M.D.
Members of Board—John A. Segerson, M.D.; David E. Gray, M.D.; Dwight Lawson, M.D.; and Richard Greer, M.D.

All members of the Editorial Board are from Topeka.

Woman's Auxiliary to the Kansas Medical Society

President—Mrs. H. Lee Barry, Wichita
President-Elect—Mrs. Virgil E. Brown, Sabetha
1st Vice President—Mrs. Lyle G. Glenn, Protection
2nd Vice President—Mrs. Larry E. VinZant, Wichita
3rd Vice President—Mrs. J. Gordon Claypool, Howard
4th Vice President—Mrs. C. M. Lessenden, Topeka
Recording Secretary—Mrs. E. Burke Scagnelli, Dodge City
Corresponding Secretary—Mrs. Gary Wood, Wichita
Treasurer—Mrs. John B. Jarrott, Hutchinson
Parliamentarian—Mrs. Chester Young, Kansas City
Historian—Mrs. William Laaser, Bethel

Kansas Medical Assistants Society

President—Norma Pryor, Wichita
President-Elect—Carol Mankle, Iola
1st Vice President—Mary Jo Sumpter, Halstead
2nd Vice President—Ellen Dudding, Topeka
Secretary—Blythe Miller, Kansas City
Treasurer—Helen Horvath, Lansing

American College of Chest Physicians, Kansas Chapter

President—John G. Shellito, M.D., Wichita
Vice President—John L. Morgan, M.D., Emporia
Secretary-Treasurer—Paul R. Carpenter, M.D., Kansas City

American College of Physicians, Kansas Chapter

Governor for the State of Kansas—Fred J. McEwen, M.D., Wichita
Treasurer—Nat Uhr, M.D., Topeka
Chairman, Program Committee—Ernest W. Crow, M.D., Wichita
Chairman, Arrangements Committee—James B. Fisher, M.D., Wichita

American College of Surgeons, Kansas Chapter

President—William L. Valk, M.D., Kansas City
President-Elect—Cyril V. Black, M.D., Pratt
Secretary-Treasurer—Robert W. Myers, M.D., Newton

E.E.N.T. Section

President—Ruth Montgomery-Short, M.D., Halstead
Vice President—Larry L. Calkins, M.D., Kansas City
Secretary—H. R. Draemel, M.D., Salina

Kansas Academy of General Practice

New officers for 1962-63 will be elected at the annual meeting in October, 1962. Officers now serving are:

President—G. P. Neighbor, M.D., Kansas City
President-Elect—N. H. Overholser, M.D., El Dorado
Vice President—Floyd C. Beelman, M.D., Topeka
Secretary—Galen W. Fields, M.D., Scott City

Kansas Obstetrical Society

President—David E. Gray, M.D., Topeka
President-Elect—Galen Fields, M.D., Scott City
Vice President—Jack Schroll, M.D., Hutchinson
Secretary-Treasurer—Edward F. Steichen, M.D., Lenora

Kansas Orthopedic Club

President—P. C. Nohe, M.D., Kansas City
Secretary—H. O. Marsh, M.D., Wichita

Kansas Pediatric Society

President—Richard Dreher, M.D., Salina
Vice President—Antoni Diehl, M.D., Kansas City
Secretary-Treasurer—Mary Blood, M.D., Wichita

(Continued on page 318)

Official Proceedings

Conclusion of the report of 1962 meeting of the House of Delegates

The transactions of the 103rd Annual Session were published in the June issue of the JOURNAL and will be concluded here. A few resolutions were not adopted. Those are not recorded in this report.

RESOLUTION NO. 31

Committee on Venereal Disease Control

WHEREAS, the incidence of venereal disease is rising nationally at a dramatic rate, and

WHEREAS, a considerable portion of this increase is reflected among children of high school age and younger, and

WHEREAS, Kansas is included in the highest national category of the incidence of venereal disease, and

WHEREAS, the medical profession is probably not yet fully aware of this fact

Therefore Be It Resolved, that the House of Delegates direct the president to reactivate a committee on the Control of Venereal Disease, and

Be It Resolved, that this committee shall, in consultation with public health officials who are expert in this field, prepare information on venereal disease in Kansas to be distributed to the physicians in this state, and

Be It Further Resolved, that this committee recommend to the members of the Kansas Medical Society a program to be followed in the practice of medicine designed to more adequately discover and to treat cases of venereal disease in this state.

RESOLUTION NO. 32

The 1963 Annual Session

WHEREAS, the 1963 Annual Session will be held in Salina, and

WHEREAS, the format of the 1961 Annual Session in Wichita was approved by those in attendance at the meeting, therefore

Be It Resolved, that the 1963 Annual Session of the Kansas Medical Society be held at Salina on April 29 to May 1, and that the Saline County Medical Society be hosts, and that the general format of the 1961 and 1962 annual sessions be continued for 1963.

RESOLUTION NO. 33

Stormont Medical Library

WHEREAS, the Stormont Medical Library provides

an important service to the physicians of this state, and

WHEREAS, if a legislative proposal to move this library away from the State House succeeds the services of this library will be seriously curtailed if not altogether discontinued, therefore

Be It Resolved, that the Kansas Medical Society give its entire support toward the continuation of this library within the State House at Topeka.

RESOLUTION NO. 34

Special Committee on Public Health

We, of the Kansas Medical Society, realize that there are a number of statutory responsibilities that are the right and proper function of the Kansas State Board of Health. We also realize that when a health problem is involved it often becomes the responsibility of the private physician. It is the considered opinion of many physicians that in the past the activities of the State Board of Health have not been correlated with the thinking and sentiments of the members of the Medical Society. Since we share the image created by the Board of Health, it only seems fair that greater communication and liaison must be conducted between the actions of the State Board of Health and the respective committees of the Medical Society directly related with the issues involved. Allow us to explore a few areas in which we hope the new Director of the State Board of Health and the Board of Health will make changes more becoming to the wishes of the Kansas Medical Society.

1. With reference to general activities of the Kansas State Board of Health, this Committee respectfully submits the following recommendations:

a. Before the State Board of Health will conduct surveys in any county, an invitation shall first be received from the county medical society in whose jurisdiction the survey is to be made.

b. The Kansas Medical Society should be given full information of new programs of the Kansas State Board of Health before they are implemented.

c. The functions of the Kansas State Board of Health should not replace the functions of private enterprise and for that reason first con-

sideration must always be given by the physician to existing private enterprise.

2. With reference to activities of the State Board of Health Laboratory, this Committee makes the following recommendations:

a. The Kansas State Board of Health Laboratory shall perform all procedures required of it by the Statutes of Kansas.

b. The work of the Public Health Laboratory shall be directed to those bacteriological, serological, and parasitological examinations which are directly related to the detection and control of communicable diseases which reasonably constitute a public health hazard in this state.

c. All serological tests for diagnosis of syphilis are performed free of charge on any individual or groups of individuals as a case finding procedure.

d. The Public Health Laboratory may perform quantitative serologic tests for syphilis.

e. The Kansas State Public Health Laboratory will run no serologic specimens for industrial purposes.

f. The practicing physician shall certify on his request for laboratory service that the patient is not charged for the performance of the laboratory procedure.

g. When any physician (a public official excepted) requests a laboratory service for an individual patient such service shall not be performed by the State Board of Health Laboratory unless it is signed by the requesting physician.

3. This Committee further recommends that the president of the Kansas Medical Society annually appoint a committee to serve in a liaison capacity with the Kansas State Board of Health and that the major purpose of such committee shall be to improve the understanding between the practice of medicine and the Kansas State Board of Health.

RESOLUTION NO. 35

Good Samaritan Legislation

WHEREAS, some states have laws granting a measure of protection from unwarranted lawsuits to physicians who render first aid to the injured at the scene of an accident, and

WHEREAS, the Council believes this might be of value, therefore

Be It Resolved, that the attorney for this Society be requested to bring a proposal on this subject to the Council for approval, and

Be It Further Resolved, that the Council utilize the resources of the medical profession in this state to have this passed by the 1963 session of the Kansas Legislature.

RESOLUTION NO. 36

(Resolution No. 36 recommended that the Kansas Medical Society encourage interchange of information between component societies concerning members and applicants.

The resolution recommended that in cases of a more serious nature the Executive Committee act in the best interest of the physician and society by gathering and disseminating information to county societies. In cases involving drug addiction, alcoholics and anti-social behavior, the Executive Committee should report in writing such information to the secretary of the Healing Arts Board.

Further, when a physician in Kansas has his license revoked, suspended or restricted this information should be made public to the society by the Healing Arts Board and the Kansas Medical Society forward this information to each component society secretary in the state.

The following substitute Resolution was introduced and adopted.)

WHEREAS, the intent of Resolution No. 36 is designed in the public interest, therefore

Be It Resolved, that this resolution be referred to the Defense Board which with the advice of the attorney be directed to carry into effect as much of this resolution as may legally be accomplished, and

Be It Further Resolved, that effort be conducted to enact a law to permit the purpose of this resolution to be legally performed in the public interest.

RESOLUTION NO. 37

WHEREAS, the Council on Mental Health of the American Medical Association has recognized Hypnosis and Hypnotherapy as an integral part of the practice of medicine, and

WHEREAS, the dangers on the use of Hypnosis by those other than qualified professional men are known and respected, and

WHEREAS, the state legislatures of other states through the urging of their state medical societies have passed legislation limiting the use of Hypnosis to qualified physicians, dentists, and psychologists, and have outlawed its use for entertainment purposes and therapy for medical conditions by unqualified lay people, and

WHEREAS, this Society may advocate legislation to promote the general good of the community and the public at large, therefore

Be It Resolved, that the Kansas Medical Society urge and secure legislation in the next session of the state legislature governing and limiting the use of hypnosis to qualified physicians, dentists and psychologists and that its use for entertainment and therapy for medical conditions by unqualified lay people be forbidden by law.

RESOLUTION NO. 38

WHEREAS, Resolution No. 38 relates to a problem in ophthalmology in the Kansas Healing Arts act which needs to be clarified, therefore

Be It Resolved, that the Committee on Conservation of Eyesight be directed to correct this situation through negotiations with the Healing Arts Board, the attorney of the Kansas Medical Society, the Attorney General of Kansas or other persons, and

Be It Further Resolved, that if these efforts are unsuccessful, the Committee on Conservation of Eyesight shall report to the Council, and

Be It Further Resolved, that the Council shall then determine before January, 1963, what other corrective measures shall be taken by this Society to eliminate this problem.

RESOLUTION NO. 42**Shawnee County Medical Society**

WHEREAS, the Kerr-Mills law has become a law of the land, and

WHEREAS, the law requires action by the individual states by permissive legislation and appropriation to completely implement both provisions of the Kerr-Mills Law, and

WHEREAS, such permissive legislation would be required in the State of Kansas before such appropriation could be made, and

WHEREAS, 28 states now have implemented both provisions of the Kerr-Mills bill, and

WHEREAS, the experience in several of those 28 states would indicate that this law is a fair and equitable method of financing the care of the aged, and one that can and should receive the support of the medical profession, therefore

Be It Resolved, that this House of Delegates go on record as supporting the concept of the Kerr-Mills law as an equitable and satisfactory method of financing health care for the aged who are in need, and

Be It Further Resolved, that the members of this House and of the Kansas Medical Society fully acquaint themselves with the provisions of the Kerr-Mills law and discuss it with their respective legislators, and

Be It Further Resolved, that a bill to implement the Kerr-Mills law be introduced into the next session of the Kansas Legislature.

RESOLUTION NO. 44**Ford County Medical Society**

WHEREAS, the physical examination form proposed by the Kansas State High School Activities Association is complex and asks questions difficult for a physician to answer, and

WHEREAS, a satisfactory physical examination of all

participants in high school athletics is a necessity, therefore

Be It Resolved, that the School Health Committee of this Society with the School Health Advisory Committee be directed to revise the proposed form to meet the needs of such examination according to accepted medical standards.

RESOLUTION NO. 45**Reno County Medical Society**

WHEREAS, the practice of private medicine in America is sorely beset and threatened by bureaucratic and political controls, and

WHEREAS, the inevitable effect of such controls can never be other than to cause deterioration and degradation of the quality of medical care available to the American public, as has been so clearly demonstrated in governmental health programs in other countries throughout the world, and

WHEREAS, the House of Delegates of the American Hospital Association in special sessions, January, 1962, has departed from these basic principles to the extent that support was offered to a proposal to supplement Blue Cross funds with assistance from the Federal treasury, "the tax source of the fund (being) of secondary importance," and

WHEREAS, the delegates from Kansas to the House of Delegates of the American Hospital Association actively opposed and voted against this proposal, therefore

Be It Resolved, that the Kansas Medical Society commend and compliment said delegates from Kansas for their courageous and forthright stand in the interests of preventing further Federal control of medical and hospital practice.

RESOLUTION NO. 49**Report—E.E.N.T. Section**

This committee doesn't believe any one that is blind should drive, neither do we believe an unusually low visual acuity requirement should be established.

It should be remembered, form vision is used in driving rather than detail. Brody (1-2) introduced the term "comprehensive seeing" and Halsey (3) says, "It is not the picture which the eye presents to the driver which counts but what the picture means to him."

In Colorado in 1954 only 0.3 per cent of the automobile accidents could be attributed to defective vision, though it is higher in some eastern states. Because of its simplicity the visual test should not be used alone to decide a driver's qualification, but only as an integral part of the general examination.

Periodic examination would be educational to many people and a reminder of their capabilities to drive.

We suggest on renewal the following requirements be used as part of the general physical.

1. 20/40 with correction or better, license be given.
2. 20/60 with correction, restricted license. (He or she can get their own examination to remove restriction.)
3. 20/70 required to have an eye examination first, then restricted.
4. 20/100 restricted license.
5. 20/150 no license.

At any visual acuity, if there is a question of field loss as shown by confrontation, an eye examination should be required.

Properly placed mirrors should be required for one-eyed drivers and those with field loss.

Periodic eye examinations should be required at ten year intervals starting at 50 years of age, and every two years after 65 years of age.

A Committee for Consultation is consisting of the State Ophthalmologists and an appointee from the president of the State Ophthalmology Section and one by the president of the Kansas State Optometric Society.

RESOLUTION NO. 52

Blood Banks

Blood banking is relatively new in the realm of available medical services, but has become one of the indispensable services necessary for the preservation of life and good health. Because blood is a product of the human body a definite price tag cannot be attached to its value, but rather an "incentive fee" is adopted to encourage the recipient to replace the blood he has used. Every physician who orders a blood transfusion not only assumes a share in the direct responsibility to the patient for the blood that is given, but also assumes an indirect responsibility for the collection, handling, and replacement of the blood.

WHEREAS, the United States Department of Public Health, and the American Association of Blood Banks, require that the screening of donors, the collection, processing, storage, and transfusion of blood be under the direct supervision of a qualified physician; and

WHEREAS, careful medical histories of prospective donors are necessary to protect the health of the donor as well as the health of the recipient; and

WHEREAS, the replacement of transfused blood is necessary to maintain sources of available blood; and

WHEREAS, blood is a product of the human body; therefore,

Be It Resolved, that the House of Delegates of Kansas recognize Blood Banking is an integral part of the practice of Medicine that includes the collection, processing, storage, and transfusion of human blood and its derivatives; and,

Be It Further Resolved, that the House of Delegates of Kansas recognize Blood Banking be considered a subspecialty of the practice of Medicine requiring the direct supervision of a physician trained and experienced in the problems of blood banking and blood transfusions; and

Be It Further Resolved, that the transfusion of blood is a medical service and the blood given is a part of that service and is not to be considered a salable product; and

Be It Further Resolved, that blood recipients be encouraged by their physician to replace the blood they receive by obtaining prospective donors; and

Be It Further Resolved, that Blood Banks in the State of Kansas be encouraged to participate in, and cooperate with, the American Association of Blood Banks to promote and maintain administrative and technical excellence in the field of Blood Banking which will reflect the highest moral and ethical consideration of the public health.

RESOLUTION NO. 54

Ford County Medical Society

WHEREAS, the County of Hodgeman has no official representation, and

WHEREAS, the County of Hodgeman desires to join the Ford County Medical Society and the 15th Council District, therefore

Be It Resolved, that the County of Hodgeman be incorporated within the jurisdiction of the Ford County Medical Society, and

Be It Further Resolved, that a new charter be issued to the Ford County Medical Society incorporating the counties of Ford, Gray and Hodgeman, and

Be It Further Resolved, that the County of Hodgeman be incorporated within the 15th Council District.

RESOLUTION NO. 57

Building Program

WHEREAS, the Committee on Medical Schools and the Committee on Rural Health in joint meeting learned from the dean of the School of Medicine at the University of Kansas of a proposed ten-year building program at the School, and

WHEREAS, this project is essential for the continual development of the school, therefore

Be It Resolved, that the Kansas Medical Society approve of this program and offer through the physicians of this state to aid in assuring its success.

RESOLUTION NO. 58

A.M.E.F. Fund

WHEREAS, the Committee on Medical Schools and the Committee on Rural Health in joint meeting

learned from the dean of the School of Medicine at the University of Kansas the benefit of the A.M.E.F. fund to the operational success of the School, therefore

Be It Resolved, that the House of Delegates of this Society and of the Auxiliary take action through the Council to continue the individual contributions from Kansas and encourage an increase in the size of this fund.

Book Reviews

(Continued from page 312)

have been extensively revised as well as re-written in effort to up date the material over the previous edition. Previous chapters dealing in the realm of biochemistry have been deleted. The excellent topics covered in the sections on circulation and neurophysiology remain essentially unchanged save for minor revision. The section on endocrinology has been extended and enlightened.

This text in its new edition remains an excellent source for knowledge in basic medical physiology.—C.C.G.

INTRODUCTION TO ANESTHESIA: THE PRINCIPLES OF SAFE PRACTICE. Robert D. Dripps, M.D.; James E. Eckenhoff, M.D.; and Leroy D. Vandam, M.D. W. B. Saunders Co. 413 pages, \$8.00.

This is the second edition of what must have been an excellent book even in the first edition, which I regret I have not seen. The first impression of this book is that it is quite elementary in its approach to this field of medicine. However as you peruse this book and examine some of the details which are presented, you quickly realize that the editors have gone to extensive effort to cull out the unnecessary information and include only those items which are most appropriate in the field of anesthesia. Even though the book is entitled INTRODUCTION, I feel that the book goes into enough detail that it serves as a general text for anyone practicing in this field; and even as a successful review book for those who may have been practicing in this field for a number of years.

This second edition includes also some items which have been felt previously to be extraneous material in the first edition but are now included. These are such rather specialized items as hypnosis, deliberate hypotension, effects of hypercarbia, etc.

I feel that this is the best book in the total field of anesthesia that we have seen in the past twenty-five years.—W.O.M.

Society and Specialty Group Officers

(Continued from page 313)

Kansas Radiological Society

President—Lewis G. Allen, M.D., Kansas City
Vice President—Richard F. Conard, M.D., Emporia
Secretary-Treasurer—Roger K. Wallace, M.D., Manhattan

Kansas Society of Anesthesiology

President—M. R. Nunemaker, M.D., Hutchinson
Vice President—R. H. Robinson, M.D., Wichita
Secretary—Joyce R. Sumner, M.D., Hutchinson
Treasurer—Wray Ender, M.D., Kansas City

Kansas Society of Medical Technologists

President—Delbert Bonnel, Topeka
President-Elect—Arnold Classen, Newton
Secretary—Esther Dahl, Kansas City
Treasurer—Patricia Warner, Wichita

Kansas Society of Pathologists

President—Richard J. Taylor, M.D., Wichita
President-Elect—R. J. Rettenmaier, M.D., Kansas City
Vice President—Hans T. Lettner, M.D., Hutchinson
Secretary-Treasurer—John E. Johnson, M.D., Kansas City

KANSAS STATE BOARD OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases

Division of Vital Statistics

Kansas Morbidity Incidence

Cumulative totals of cases reported for the first four months of 1962 and 1961

Disease	January to April Inclusive		
	1962	1961	5-Year Median 1957-1961
Amebiasis	23	16	16
Aseptic meningitis	4	—	*
Brucellosis	9	13	24
Cancer	1,153	1,415	1,666
Diphtheria	—	—	—
Encephalitis, infectious .	6	9	9
Gonorrhea	681	910	704
Hepatitis, infectious ..	259	329	133
Meningococcal, meningitis	7	9	8
Pertussis	6	14	26
Poliomyelitis	—	—	1
Rheumatic fever	6	2	2
Salmonellosis	18	13	*
Scarlet fever	361	741	351
Shigellosis	7	50	12
Streptococcal infections .	731	692	79
Syphilis	394	450	465
Tinea capitis	67	48	107
Tuberculosis	100	109	128
Tularemia	5	5	9
Typhoid fever	—	2	2

* Statistics on 5-Year Median not available

Avoid Investment Errors

Regardless of the amount you have to invest, the results you get depend not only on what you *do*, but also on what you *don't* do. Too many investors throw away potential profits by falling into one of ten very common investment errors. Profit from their mistakes—by learning to recognize the pitfalls:

1. *Taking the "hot tip."* This gay deceiver has all the charm of the "fast buck"—and all its elusiveness as well. The few people who do have dependable inside information on a company's stocks are usually in a quasi-fiduciary position, too responsible and ethical to use the facts for their own benefit or pass them on to friends. When so-called confidential information gets around, it's a safe bet that it has been intentionally leaked by someone for his own advantage—and the would-be buyer had best beware.

2. *Reaching for excessive profits.* The danger of this foible is vividly illustrated in the sad tale of the man whose wife wanted to make enough money in the stock market to cover the cost of a fur coat. He bought some shares of an issue which was undervalued at the time, and the stock soon doubled in price. Instead of selling out at that point, his wife—against the advice of an investment counselor—bought more of the same stock, using her original shares as margin. Unfortunately, the stock dropped and she ended up with no coat at all!

3. *Emotional attachment to a stock.* Many investors become emotionally attached to certain stocks and are reluctant to sell them, especially at a loss, even though the statistics of the situation are all in favor of selling. "I don't want to sell that stock; my husband thought so well of it" is not an uncommon statement. The husband may have been perfectly right at the time, but circumstances change. For a widow deprived of her husband's earning capacity, a particular stock might not produce enough income for her under altered financial conditions. Also, after a number of years, the company's position may have deteriorated. Even if the outlook for a security is still favorable, another might be better for that particular investor. In the fast-changing world of the stock market, flexibility pays off.

4. *Buying securities because you like the company's product.* Though it's true that a good product is apt to win a certain amount of consumer support, the day of the Better Mousetrap has passed. The world no longer beats an inevitable path to the door of the best producer. In our competitive economy everything has to be promoted and some managements are more successful in doing so than others. The aggressiveness and merchandising capabilities of management

are important factors in analyzing stock values—factors which do not show up in the product itself.

5. *Buying because you know the company president.* This might be a source of valuable information—but more likely it is not. In today's climate of intense business competition, the President of a corporation is probably a supersalesman and very enthusiastic about his company—otherwise he wouldn't be President. When conditions in his company are good, he'd have no hesitation in saying so—often with a certain amount of exaggeration. If things are not going so well, he'd be a foolish chief executive to advertise that fact to his acquaintances. Such information is extremely difficult to obtain and even professional investment counselors have to dig deep and hard to get it.

6. *The belief that bonds are the safest form of investment.* This may or may not be true, depending partly on the bond issuer's credit. In earlier and less prosperous years, many bonds, particularly those of railroads, declined quite drastically in price. In many cases there was default; in others, reorganization. As for the effect of interest rates on a bond investment, consider the longest-term U. S. Treasury Bonds now outstanding which were sold for cash, namely the 3s of 1955. They were issued at 100 in February 1955 and their recent quotation was around 85. This means that in the five years they have been outstanding, they have lost an average of about three points a year—or as much as a bondholder received in interest.

7. *The belief that preferred stocks are a better investment than common stocks.* Preferred stocks are subject to the influence of interest rates—and the experience that holders of this type of investment have had over the last few years has been far from satisfactory. The Standard & Poor's Index of Preferred Stocks shows that in 1956 prices reached a peak of \$176. The low in February, 1960 was \$145—a decline of 31 points, or about 18 per cent. Preferred stocks have their place in an investment program, but, like any other tool, they must be handled correctly and *used at the right time.*

8. *The belief that common stocks are "speculative."* Many are—but so are many bonds and preferred stocks. Common stocks as a group may fluctuate more widely in price than senior securities, but you should not confuse "fluctuation" with "speculation." Nearly every investor says he wants to be "conservative," but just what is meant by that word? Are you conservative if you had a dollar ten years ago and still have a dollar today, even though it has a purchasing power of less than 50 cents? Or are you conservative if you

increased your dollar to two dollars, so that you can still buy as much as you could 10 years ago? In short, are you conserving *dollars* or *purchasing power*? There is no absolute protection against inflation but, for the average person, common stocks present the best and most practical medium for that purpose. However, all common stocks are not hedges and you must select issues that enhance in value as a result of a rising trend in earnings, which will allow dividends to be periodically increased—preferably at a rate which will compensate for the declining value of the currency.

9. *Failure to get adequate investment advice.* Because it's so difficult for even the shrewdest investor to be completely unemotional about the handling of his own money—and because it's even harder for him to know all the business and governmental trends that influence the future of a stock—it's wise to seek professional advice before investing your money. Mutual funds, banks, printed services, brokers, investment counselors and some lawyers are all possible sources of such advice. Investment counselors will not sell stocks or act as brokers, on the theory that they can thus give impartial advice to clients. Such firms usually make recommendations to the client, who then places orders through his own broker. Often they also provide a "Management Account" or "Special Supervisory Service" in which the investment counselor places orders for purchases or sales on his own initiative and notifies the client afterward.

10. *"I can cut my own coupons."* This error, one with which all banks are familiar, can cost the investor a lot of money. If bonds are called before they are due and the investor doesn't know about it, he can lose at least six months interest. Suppose he's out of town when a corporation whose stock he owns issues valuable rights that must be either exercised or sold before he gets back—if he does neither, his losses might amount to several times the cost of a bank Custodian Account, one of the best and least expensive services a bank performs and one which investment counselors often recommend to their clients.

But even if you don't put yourself in the "coupon-clipper" class, you may be richer than you know simply by virtue of having learned ten of the most common investment errors. You now know more than most investors—and if you doubt this, ask any investment adviser.

If only we are faithful to our past, we shall not have to fear our future. The cause of peace, justice and liberty need not fail and must not fail.

—John Foster Dulles

NEW BOOKLET AVAILABLE

A new booklet to assist physicians in prescribing fat-controlled diets for lowering blood cholesterol levels in patients is available from the Kansas Heart Association, 633 Kansas, Topeka.

The 28-page booklet, "Planning Fat-Controlled Meals for 1,200 and 1,800 Calories," presents guidance in non-technical language for patients on prescribed fat-controlled diets. A second booklet, similar to the first except that calories will not be restricted, is scheduled for publication this summer. Both booklets will be available to patients only on a physician's prescription.

Diet plans offered differ from the "average" American diet in two ways: (1) They are moderate in fat, providing about 35 per cent of the day's calories from fats instead of the usual 40 to 45 per cent, and, (2) More of the fat comes from vegetable oils and less from meat and dairy products, raising the ration of polyunsaturated to saturated fatty acid above customary levels.

Practical advice on shopping, cooking and dining out is offered to help patients accept, adjust to and stay on fat-controlled diets. Suggested menus and recipes and lists of food to use and to avoid also are included.

In a statement published in January, 1961, on dietary fat and its relation to heart attacks and strokes, the American Heart Association recommended "the reduction or control of fat consumption under medical supervision, with reasonable substitution of polyunsaturated for saturated fats" as a possible means of preventing atherosclerosis and decreasing the risk of heart attacks and strokes. Fat reduction, according to the statement, is probably of greatest potential benefit to the overweight, to persons who have had a heart attack or stroke and to men whose family histories suggest they may be particularly susceptible to atherosclerosis.

The two booklets were prepared jointly by the Nutrition Committee of the American Heart Association, the American Dietetic Association and the Heart Disease Control Program of the U. S. Public Health Service. Physicians, nutritionists and other consultants with special knowledge of the subject matter participated in developing them.

Physicians may request copies of the first booklet and the second, when it becomes available, for their use and for use of their patients by contacting the Kansas Heart Association.

I never have a merry thought without being vexed at having to keep it to myself, with nobody to share it.—Montaigne

Basic Research in The Pharmaceutical Industry

VICTOR A. DRILL, M.D., *Chicago, Illinois**

ABOUT 85 PER CENT of the drugs now used in medical practice were unknown 15 or 20 years ago. This revolution began in the late twenties and early thirties when the pharmaceutical industry in the United States realized the necessity for basic research in the chemical and biological sciences and began to develop laboratories for this purpose.

The first laboratories in a growing industry are usually for control purposes; for drugs this means assurance of stability, purity, and potency. When the laboratory is expanded to include applied research, it is not long before the need for basic research becomes evident. Parke, Davis and Company was one of the pioneers in this effort and major steps in this direction were undertaken when Dr. K. K. Chen became the first Director of Pharmacological Research at the Eli Lilly Company in 1929. The Merck Laboratories expanded research efforts with the counsel and guidance of Dr. A. N. Richards, Professor of Pharmacology at the University of Pennsylvania. They dedicated their first pharmacology laboratory in 1933, with Dr. Hans Molitor as director. Other pharmaceutical companies followed in rapid succession. This upsurge in basic research was so unexpected and novel that the American Society for Pharmacology and Experimental Therapeutics withdrew membership for scientists employed in industry, and did not readmit them until 1941. But times have changed and today many outstanding scientists of industry and academic institutions share in the development of our basic medical knowledge.

What Is Basic Research?

Basic research has been defined as the search for knowledge without regard to application. Such a meaning would exclude the physician who is dedicated to the alleviation of a cardiac valvular deformity, and may spend years in basic research on the problem to achieve his goal. In a sense, because a goal is set, this is applied research; but applied research, often considered inferior, can be quite basic. Similarly the chemist who attempts to determine the structure of cortisone, chloramphenicol, or reserpine

may have in mind the synthesis of better derivatives, but may in the process need to develop new basic chemical concepts.

Today, the division between fundamental and applied research has practically disappeared. The National Science Foundation defines research as "systematic and intensive study directed toward a fuller knowledge of the subject studied and use of that knowledge directed toward the production of useful materials, devices, systems, methods, or processes, exclusive of design and production engineering." Basic research, therefore, is that research in which the investigator asks a question and then attempts by the scientific method to find his answer, and thereby increase the total of human knowledge.

Publications in Basic Research

Good research produces scientific papers and one method of measuring the contributions of the pharmaceutical laboratories to fundamental knowledge is by determining the number of reports appearing in scientific journals. Fisher,¹ in an analysis of one year's contributions of basic research papers by scientists of industrial laboratories, found that the chemical industry produced the largest number of papers. The pharmaceutical industry was second, contributing two-thirds as many papers though it is only one-tenth in size. Further, of all industries surveyed 59 American companies published more than ten papers each; 16 or 27 per cent of this total were from the much smaller pharmaceutical laboratories.

New Drugs From Basic Research

New drugs developed during the past 15 to 20 years have added immensely to the ability of physicians to treat disease. Some few of the new drugs may be ascribed to the ingenuity of a single individual. Most were results of many investigations included in basic studies performed by academic and industrial laboratories in medical schools, and hospitals. A battery of experts—the chemist, biochemist, physiologist, pharmacologist, toxicologist, research clinician, and practicing physician—are needed for such projects. Although the role of the pharmaceutical laboratory in developing a number of major drugs is well known, the contributions of the pharmaceutical

* Director of Biological Research, G. D. Searle & Co. Reprinted from *The Journal of the Indiana State Medical Assn.*, Jan, 1962, Vol. 55, No. 1, pp. 69-71, 74 (Copyright 1962, Indiana State Medical Association).

TABLE I
HISTORY OF SOME DIURETIC DRUGS

1943	Mercuhydrin	Lakeside
1952	Noehydrin	First oral mercurial (Lakeside)
1957	Diuril	Diuretic and antihypertensive compound (Merck)
1959	Hydrodiuril Esidrex	Ten times as potent as Diuril (developed independently by Merck and Ciba)
1959	Aldactone	Aldosterone antagonist; effective where mercurials and thiazides do not work (Searle)

TABLE II
SUMMARY OF VARIOUS ANTIBIOTICS

1940	Actinomycin	Discovered by Waksman in collaboration with Merck
1943	Penicillin	Large-scale production developed by several companies
1945	Potassium penicillin G	First orally effective penicillin
1946	Streptomycin	Discovered in a program by Waksman, Merck and Squibb
1946	Procaine penicillin	Lilly and other laboratories
1948	Dihydrostreptomycin	Merck
1948	Aueromycin	Discovery of first broad-spectrum antibiotic (Lederle)
1949	Chloromycetin	Broad-spectrum antibiotic (Yale University and Parke, Davis)
1949	Terramycin	Broad-spectrum antibiotic (Pfizer)
1951	Bicillin	Repository penicillin, permitting one injection therapy (Wyeth)
1952	Ilotycin Erythrocin	Alternative for penicillin (Lilly and Abbott)
1953	Achromycin Tetracycline Polycycline	Developed independently by Lederle, Pfizer and Bristol
1953	Fungizone	For certain systemic mycoses (Squibb)
1955	TAO	Pfizer
1957	Spontin	For resistant Gram-negative infections (Abbott)
1958	Declomycin	A basic modification of the tetracycline molecule (Lederle)
1959	Syncillin	First synthetic penicillin (Beecham and Bristol)
1959	Staphicillin	Synthetic penicillin effective against penicillin-resistant organisms (Beecham and Bristol)

TABLE III
SOME NEWER STEROID HORMONES

1. Anti-inflammatory steroids		
1952	Cortisone (Cortone)	Began a new era of therapy (synthesized by Merck)
1952	Hydrocortone	Merck
1955	Meticorten	A more potent corticoid (Schering)
1957	Medrol	Fewer side effects than prednisolone (Upjohn)
1958	Aristocort Kenacort	Effective anti-inflammatory agent, particularly topically (Lederle and Squibb)
1958	Decadron Deronil	Seven times prednisone potency; less salt retention (Merck and Schering)
1959	Oxylone	For topical use (Upjohn)
2. Anabolic steroids		
1956	Nilevar	First significant advance in androgen-anabolic modification (Searle)
1959	Durabolin	Organon
1960	Dianabol	Ciba
3. Progestational steroids		
1957	Enovid	Orally effective progestational steroid (Searle)
1957	Norlutin	Orally effective progestational steroid (Syntex and Parke, Davis)
1958	Prodox	Orally effective progestational steroids (Upjohn)
1959	Provera	
4. Ovulation control		
1960	Enovid	First approved chemical method for family planning

industry are substantially greater than is generally known.

Diuretic drugs are a good example of the fruits of research and the time factors involved. As recently as 1943 Lakeside Laboratories introduced Mercuhydrin into medical practice. Although extremely useful, Mercuhydrin and other mercurials were still ineffective or poorly effective in many patients and had certain hazards, plus the inconvenience of injection. It was not until 1952 that an orally effective mercurial diuretic was developed (Table I). In the meantime Sharp and Dohme (later Merck Sharp and Dohme) began, in 1943, a basic renal research program and over a period of years their scientists added significantly to our fundamental knowledge of the kidney. This work led to the development of the thiazide drugs, with Diuril being made available to the physician in 1957.

Meanwhile, at our own laboratories, we began to approach the problem of edema from a different view-

point. A sodium-retaining factor, present in the urine of edematous patients, had been reported by several authors and was identified as aldosterone in 1954. Although the causative role of aldosterone in edema was then unknown, a review of available data indicated the possible importance of this compound in the production of edema. Part of our renal program, therefore, was directed towards a study of this steroid. This project, begun in 1954, culminated in 1959 in Aldactone. The study was of basic importance because Aldactone, a steroid that blocks the action of aldosterone, is the first specific steroid-blocker to be discovered.

This finding opens the door to the development of blocking steroids in other areas of medicine. From the therapeutic standpoint Aldactone was of value because it relieved edema in many patients resistant to other drugs. The thiazide drugs and Aldactone act by different mechanisms in the kidney, and several clinicians found that a synergistic diuretic ef-

fect was obtained when these drugs were administered together. Not only did more patients respond to the combination but the potassium-losing effects of thiazide were counteracted. Thus, from basic work of many scientists, came newer knowledge that led to the separate development of two new types of drugs for the further alleviation of disease.

Further examples of drug development may be noted in the fields of antibiotics and steroid hormones (Tables II and III). Likewise, advances were made in vitamins, sulfonamides, antihistamines, tranquilizers, antihypertensive drugs, eurythmic agents, pressor amines, anticholinergic drugs, motion sickness drugs, muscle relaxants, antiparasitic drugs, and in other areas. The result of such progress is that patients live today who would have died yesterday.

Increased Basic Research in Industry

Traditionally, the universities have been the centers for basic research. Following the introduction of such research into the pharmaceutical laboratory, and the resultant production of new drugs, similar changes have occurred in other fields. It has recently been stated that the "research done in industrial laboratories is now the major portion of research in progress in this country and is increasing steadily."² Hickey³ has seriously questioned the ability of academic institutions to meet the increased requirements for basic research and Gershinowitz concludes that "It just isn't possible that enough work can be done at universities even if they did all fundamental research and no applied research."²

Basic research efforts must be further increased over the coming years. Basic research generates ap-

plied research, and the reverse is equally true. Today, there is no way to distinguish the scientist performing basic studies in an industrial laboratory from his counterpart in the university. The key is the individual scientist who must have originality, ability and a high degree of freedom in his work. The result is scientific publication and medical progress. Finally, the increase in knowledge and the production of new and useful drugs are important not only from the physician's standpoint, but are part of our total research contribution to the economic growth and gross national product of our nation.⁴

The Future

The important role that basic research in the pharmaceutical industry has played in the development of new drugs is evident. This revolution in drug development, which has taken place over the past 30 years, will accelerate further as basic research is increased by the pharmaceutical laboratory. The rate of progress will also increase, for the time interval between the discovery of basic knowledge and its application is steadily decreasing and will shorten further.

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4. Doe, J. E., What I Know About It, *J. Kans. M. S.* 54:717-719 (Dec.) 1954.

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Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.



ALBERT A. GAUSZ, M.D.

Albert A. Gausz, 58, Leavenworth, died at the University of Kansas Medical Center on May 25, 1962.

Dr. Gausz was born at Leavenworth on September 3, 1903. He graduated from the Kansas University School of Medicine in 1931 and served his internship at the Medical Center. He was a physician in Leavenworth for 29 years, beginning his practice there in 1933.

He was a member of the St. Paul's Episcopal Church and various medical organizations. Survivors include his wife and one daughter.

BARRETT A. NELSON, M.D.

Barrett A. Nelson, 67, Manhattan physician for 35 years, died at his home on June 10, 1962.

Dr. Nelson was born January 29, 1895, in Seattle, Washington. He received his medical degree from the University of Minneapolis School of Medicine in 1927.

He was a member of the First Presbyterian Church, various medical associations and served as president of the Kansas Medical Society in 1957-58.

He is survived by his wife and two daughters.

HAROLD F. SPENCER, M.D.

Harold F. Spencer, 54, Emporia physician, died at the University of Kansas Medical Center on May 27, 1962.

A native of Kansas, Dr. Spencer was born at Yates Center on April 8, 1908. He attended the College of Emporia and graduated from the University of Kansas School of Medicine in 1934. He interned at St. Margaret's Hospital, Kansas City, and practiced at Garnett for several years before entering the armed services. After discharge, he returned to Emporia to practice.

He was a member of the Presbyterian Church, the Board of Trustees of the College of Emporia, and various Masonic bodies. He served as president of the medical staffs of St. Mary's and Newman Memorial County Hospitals.

Dr. Spencer is survived by his wife, one son and one daughter.

CHARLES E. VESTLE, M.D.

Charles E. Vestle, 57, Humboldt, died June 11, 1962, in a Chanute hospital.

Born at Holton on August 19, 1904, Dr. Vestle attended the University of Kansas and received his medical degree from the University of Tennessee Medical School in 1931. He practiced a short time at Holton before moving to Humboldt.

He was a member of the Grace Episcopal Church and was active in civic and professional affairs. He had served on the educational council of the Kansas State Chamber of Commerce and was a past president of the Humboldt board of education.

Dr. Vestle is survived by his wife.

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Chronic Bronchitis

A Major Respiratory Disease

MARTIN FITZPATRICK, M.D., *Kansas City**

THE SPECTRUM of pulmonary disease has undergone a striking change in the last twenty years since the introduction of efficient antibiotics into clinical medicine. During this same period, many new and more precise diagnostic techniques have evolved. As a result of these factors, the medical profession in general has shown a growing awareness of the problem posed by chronic bronchitis. In many communities, mortality from this disease or its complications exceeds that from pneumonia or from pulmonary tuberculosis. In a former generation chronic bronchitis was a diagnosis that medical students were taught to avoid. Today, as a result of better diagnostic measures, we are returning it to a respectable position in the field of respiratory disease.

Clinical Picture

The typical victim of chronic bronchitis is a male, over 45, with a chronic cough productive of sputum. With progression of the disease, dyspnea on exertion due to emphysema, and wheezing due to partial bronchial obstruction appear.

* From the Department of Medicine, University of Kansas School of Medicine, Kansas City.

Dr. FitzPatrick's present address is Will Rogers-O'Donnell Memorial Research Laboratories, Saranac Lake, New York.

Frequently the common underlying disorder is disregarded and a variety of diagnoses may be forthcoming depending upon the state of the disease and the different symptoms observed. The early or mild

Chronic bronchitis has emerged as a major respiratory disease, whose morbidity and mortality continue to grow in our aging population. Proper management of this clinical entity requires attention to the problems of infection, airway obstruction, respiratory secretions and frequently, anoxia and carbon dioxide retention.

state is often regarded as acute bronchitis, bronchial catarrh, or "smokers bronchitis." With chronicity and increased sputum production a frequent confusion with bronchiectasis occurs. A further progression with partial bronchial obstruction and wheezing is often called asthmatic bronchitis, bronchial asthma, or allergic bronchitis.

Characteristically the disease starts as an acute inflammatory bronchitis, which later becomes chronic. Predisposing constitutional, or environmental, emo-

tional, or possibly immunological factors determine the rapidity of transition from the acute to the chronic state. Reid, among others, has detailed the characteristic pathological picture of chronic bronchitis. She has emphasized the role of the hypertrophied mucous glands and goblet cells of the mucosa in the excessive production of sputum, so characteristic of the disease.

Bronchoscopic examinations of patients with chronic bronchitis is often carried out because of the small hemoptyses that many of them exhibit. The endoscopic picture is quite characteristic. There is generalized edema and increased irritability of the mucosa, along with increased friability, resulting in small blood streaked areas of both major bronchi. Secretions are increased, and are typically glary and mucoid. A purulent appearance denotes secondary bacterial infection. Longitudinal striation of the mucosa is seen in patients with long standing disease.

Pulmonary emphysema, either generalized or focal, may coexist with chronic bronchitis. In that event, respiratory function studies will be of value in assessing the individual contribution of bronchitis or emphysema to the clinical picture.

The patient with progressive chronic bronchitis has two major complications that contribute to mortality. Acute pulmonary infection, often seemingly insignificant, may be lethal in this situation, and may be either in the form of bronchitis, bronchiolitis, or bronchopneumonia. The other major complication is the development of congestive failure secondary to cor pulmonale. The latter is often refractory to the usual measures aimed at restoration of myocardial competence, unless concomitant treatment is also directed at the cause of the precipitating anoxia.

Management

The management of chronic bronchitis is best achieved by a consideration of the following important principles.

1. Withdrawal of respiratory irritants.
2. Treatment of infection.
3. Relief of airway obstruction.
4. Control of respiratory secretions.
5. Use of anti-inflammatory adrenal steroids in severe cases.
6. Use of mechanical ventilation for complicating anoxia or hypercapnia.

Respiratory Irritants

The major irritant to most of today's patients with chronic bronchitis is inhaled tobacco smoke. The resulting cough and sputum production in each smoker will vary with the amount of tobacco smoke inhaled and the breathing pattern of the individual. Little success is achieved in the management of chronic bronchitis without total removal of inhaled tobacco smoke.

Other environmental air pollutants frequently are aggravating factors and should be removed whenever possible.

Treatment of Infection

The vast majority of respiratory infections are of viral etiology, and hence, are extremely difficult to prevent or to treat. Secondary bacterial invasion, however, is a significant factor in the pathogenesis of chronic bronchitis and is more amenable to control. Pneumococci and Hemophilus influenzae are the most common offending agents, and denote their presence by a purulent character of the sputum.²

Penicillin or tetracycline administered systemically in conventional dosage for a period of seven to ten days generally returns the sputum to its typical glary, mucoid appearance. Prolonged continuous antibiotic treatment is to be avoided, to prevent the evolution of resistant flora or overgrowth by fungi in the bronchial secretions.

Relief of Airway Obstruction

Wheezing in the patient with chronic bronchitis denotes partial airway obstruction, and should be relieved by the simplest and most efficient pharmacologic agent for that individual. Unfortunately, there are considerable individual differences between inhaled, oral, or parenteral bronchodilators, and often one has to try several approaches before finding the correct one for each patient.

Of the aerosolized bronchodilators, 2.25 per cent racemic epinephrine or 0.25 per cent to 1.0 per cent isoproterenol are effective and relatively free from undesirable side effects. Their duration of action is about one hour, and so a longer-acting adjunct is generally required.

Aminophylline by mouth, either alone or mixed with ephedrine, is an effective longer-acting bronchodilator. In more severe cases it can be used as an alcoholic and aqueous solution, theophylline elixir, to achieve a therapeutic blood level more quickly. It is effective following rectal installation of an aqueous solution, or can be administered by slow intravenous drip, 0.5 to 1.0 Gm. per liter, in patients with severe bronchospasm.

Control of Respiratory Secretions

Dehydration is present in the majority of tachypneic victims of chronic bronchitis, and often contributes to further airway obstruction by viscid, tenacious secretions. An adequate water intake is necessary to obtain relief of this situation. In dry, arid climates, low humidity may be a complicating factor in this regard, and relief by periodic nebulization with water, saline, or propylene glycol solution will prove worthwhile. Miller and associates have noted

success with the use of high humidity and heated aerosols in patients unable to mobilize inspissated bronchial secretions.

In patients with considerable airway obstruction due to viscid secretions a program of aerosolization of surface-active agents such as aqueous solutions of Triton A-20 or sodium tetradecyl sulfate at frequent intervals during the day is a useful adjunct to postural drainage.

Use of Anti-inflammatory Adrenal Steroids in Severe Cases

Adreno-cortical steroids have enjoyed a wide popularity in treatment of patients with bronchospastic disorders, often at the expense of other equally important therapeutic agents. The anti-inflammatory properties of these agents are useful in combating local tissue edema, cellular exudate, and bronchial secretions, and so they should be used only where there is clear-cut evidence of inflammation of the bronchial tree. Sufficient clinical experience has now accumulated to indicate that other simpler measures should be tried initially, and that steroid therapy should be reserved for these critically ill patients where all other forms of therapy have failed. Patients with "pure" emphysema, without concomitant chronic bronchitis are not helped by adreno-cortical therapy.

The anti-inflammatory properties of dexamethasone, triamcinolone, or prednisolone, with their decreased mineral corticoid effect, make these agents the most desirable for oral administration. The critically ill patients with severe airway obstruction, infection, and anoxia is often dramatically helped by concomitant intravenous ACTH. Once the airway obstruction has been relieved and the accompanying infection brought under control, the dosage of adrenal steroid should quickly be lowered to a maintenance level, and ultimately discontinued after gradual and cautious withdrawal.

Correction of Anoxia or Hypercapnia

Anoxia in patients with chronic bronchitis is a manifestation of advanced disease resulting from under-ventilation of perfused segments of lung. Superimposed infection is usually the precipitating factor. In this situation oxygen therapy is necessary to counter the deleterious tissue effects of hypoxia, and also to reduce respiratory work. Care must be exercised in administration of high concentrations of oxygen to patients who may also have carbon dioxide retention, to prevent further CO_2 accumulation and possibly narcosis. Barach, among others, has suggested a graduated increase in oxygen concentration, with free expiratory flow, to prevent an abrupt elevation of arterial carbon dioxide tension, and CO_2 narcosis.

Progressive carbon dioxide retention triggered by infection can appear in the advanced stages of bronchitis, with coexistent emphysema, and may result in respiratory acidosis and carbon dioxide narcosis. This serious complication is best countered by measures aimed at decreasing the work of breathing and improving alveolar ventilation by controlled mechanical ventilation. The struggling, anoxic patient may benefit from mild sedation while controlled pressure breathing assistance either by cuffed tracheostomy or endotracheal tubes reduces carbon dioxide retention and combats anoxia. The recent addition of effective portable pressure breathing equipment has greatly facilitated the arduous bedside care of these critically ill patients, and has replaced the tank respirator in many areas.

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Rx: MORE LIGHT, MORE NOISE

Elderly persons require brighter lights and more noise for emotional stability than do younger adults, according to Dr. Ewald W. Busse, Director of Duke University's Center for the Study of Aging. Aging brings significant changes in ability to adapt to darkness, in speed of perception of light stimuli, in ability to distinguish between different intensities of light. Thus, older people frequently object to eating by candlelight, for they require more light to see their food. Consciousness of background noise also is affected. "The effort to keep noise at a minimum so that older people can enjoy peace and quiet may be the worst possible therapy," he added.—*Medical Tribune*, April 30, 1962.

Temporal (Giant Cell) Arteritis

*“. . . unknown etiology, . . . difficult to diagnose,
. . . visual defects, . . . protracted for years.”*

JOSEPH M. STEIN, M.D., *Topeka**

TEMPORAL ARTERITIS is an acute or subacute disease, occurring most often in middle or older age, of unknown etiology, often difficult to diagnose in its early stages, and frequently leading to serious complications, most often in the visual system. As noted by Berger and Senders, the condition was described first by Hutchison in 1899, but was described more clearly as an entity by Horton *et al.* in 1931. Since that time, a fairly extensive literature has accumulated, part of which will be cited in this discussion. There are no available figures concerning the overall incidence of temporal arteritis, but the condition is by no means rare, deserving full consideration in the presence of any of the associated symptoms. Major series include 175 patients from the Mayo Clinic⁸ and 76 patients from England.¹¹

A variety of names have been used to designate this disease, including temporal arteritis, cranial arteritis and giant cell arteritis. The first two names refer to the most common sites of involvement, which are about the head and neck, whereas the last name refers to the arterial histopathology. The majority of cases occur between the ages of 50 and 80 and there is no significant differential in sex incidence. No associated or predisposing disease entities have been described.

Symptoms

A common mode of onset is a prodromal period of weeks or months of varying degrees of vague discomfort, feelings of generalized weakness, loss of vigor, weight loss, fever, and emotional symptoms which may include irritability and depression. Severe mental changes are not common, but have been described.¹¹ Following the prodrome, the more specific symptom of persistent headache occurs, often severe and generalized, but sometimes producing variations of neuralgic complaints about the face and neck. The initial headache may be quite localized, as illustrated by Case 1 of Font. However, complicating manifestations of visual disturbance, cardiac insufficiency, cerebral vascular insufficiency, or arthritis may be present without headache.

* Staff neurologist, Department of Neurology and Neurosurgery, The Menninger Foundation.

Paper read in part at the Kansas Regional Meeting of the American College of Physicians, March 3, 1961.

Giant cell arteritis is not uncommon and may be encountered by any practicing physician. Awareness of this entity and proper investigation will lead to diagnosis quite promptly in most cases. Arterial biopsy is the preferred method of establishing the diagnosis.

No special treatment is yet available, but medication with steroids has proved most useful in relieving the severe pain of this condition.

Loss of vision is the most common complication of giant cell arteritis, and the incidence of permanent blindness may possibly be decreased by steroid treatment. Other complications have been described.

The long-range treatment and study of each patient is indicated, since the disease may be protracted for years, with intermittent complications.

Complications

The commonest complication in the course of the disease is some degree of visual loss, with an incidence of 35 to 42 per cent in some series.^{5, 8} Visual deficit may occur in one or both eyes, and varies from partial loss to complete blindness. Complete blindness is common, as high as 22 per cent in an overall review,² 12 per cent in the series reported by Hollenhorst *et al.* In the Hollenhorst group of 175 patients, 73 had some permanent visual defect (42 per cent), and 46 of those patients were completely blind in one or both eyes. The very strong possibility of a tragic degree of permanent visual loss in an individual who might otherwise make a very good recovery, and the reported reduction of this complication under treatment, serve as strong reasons for the earliest and most accurate diagnosis of the disease.

The involvement of coronary arteries or of the major arteries supplying the brain accounts for some of the mortality of this disease, cited in the range of 10 to 20 per cent overall.⁵ These and other less common complications have been well reviewed.^{5, 7, 9, 11}

Pathology

The involved arteries show a characteristic thickening of the intima, which may produce a complete occlusion of the lumen. The internal elastic lamina is often destroyed. Infiltration of all layers of the vessel by polymorphonuclear leukocytes, plasma cells, giant cells, lymphocytes and even eosinophiles may occur. Discussion of the problems of relationship to other diseases, such as polyarteritis nodosa, do not lie within the scope of this paper, but have been discussed by others.⁵

Diagnostic Tests

The first steps in diagnosis are the recording of a careful history, the suspicion of this disease in the differential diagnosis, and suggestive findings on examination. The most characteristic finding on examination is that of thickened, tender, tortuous and often pulseless superficial temporal arteries. Tenderness of carotid, occipital or facial arteries may also occur. The findings on ocular funduscopy may also be suggestive, ranging from acute swelling of the optic nerve head to progressive optic atrophy.¹² A low-grade fever may be recorded, leukocytosis may be present, and the plasma globulin may be elevated, with reversal of the albumin/globulin ratio.⁵ The most constant positive laboratory test is the elevated erythrocyte sedimentation rate, often in the range of 80 to 100 millimeters per hour.

Various authors agree^{8, 11, 12} that biopsy of an available vessel, most commonly the superficial temporal artery, may be most helpful and is easily accomplished. Nevertheless, the absence of characteristic pathology in the biopsied vessel does not exclude the diagnosis.

Treatment

No specific treatment for the disease has been described up to the present time. Steroid medication, however, when used in adequate dosage, provides prompt and effective relief of the often severely disturbing headache. The Mayo Clinic group does provide some suggestive statistical evidence that the incidence of bilateral blindness is somewhat lower in the steroid treated cases than it is in others, but the incidence of visual impairment and the incidence of unilateral blindness are not nearly so impressively different in the two groups of patients.^{8, 12} Phenylbutazone has been suggested³ but apparently provides no advantages.

Anticoagulant therapy has been used in the presence of frank symptoms of arterial obstruction, but there is no evidence that this has been of any help. Nevertheless, in the presence of progressive occlusive symptoms, the clinician feels himself strongly moti-

vated to attempt to help the patient in this manner.

The following four cases were seen in consultation within a period of about a year and a half, and two patients remain under continuing observation and management. Another patient has died and the fourth patient is no longer available for further examination. Diagnosis in all cases was verified by biopsy. (All sedimentation rates are the results of the Westergren method.)

Case 1

This patient was a 72-year-old, divorced woman, very independent, possessing a great fund of religious conviction. A detailed review of her past personal and medical history revealed no information pertinent to the present discussion. She first became ill on December 12, 1959, with persistent and moderately severe aching and soreness over both frontotemporal areas, and an associated decline in general vigor. Three days later she saw her family doctor who felt that she might have the flu, and he gave her an injection of penicillin. Sixteen days later another doctor found nothing further. Immediately after this she noted a diminution of vision in the left eye, with a few episodes of loss of vision lasting a few seconds. She was referred to her ophthalmologist, who had found her negative on his last examination fifteen months before. This time he found an absence of light perception in the left eye, swelling of the left optic disc, with no evidence of central artery thrombosis and no head tenderness. She was referred to an internist who referred her for neurological examination. A dental examination revealed three bad teeth. (The patient had cancelled her first neurological appointment in order to have the extractions, illustrating the common observation that these patients are more preoccupied with the pain than they are with the actual presence of blindness.) Thirty-two days after onset she noted a sudden complete loss of vision in the right eye for 20 minutes, was hospitalized by an internist and was seen by me that evening. Minimal pulsation in nontender, thickened temporal arteries was found bilaterally. Swelling of the left optic disc, fragmentation of the blood column in two veins, two subacute linear hemorrhages and complete loss of vision in the left eye with the usual pattern of pupillary reaction completed the total physical findings. Sedimentation rate was moderately elevated, white blood count 15,000. A diagnosis of temporal arteritis was made, warfarin sodium and heparin were promptly started, and a trial regime of phenylbutazone was initiated. Six days later haziness and blurring of vision occurred on the right, and the beginning of progressive blurring of the right disc margin was noted. Within 24 hours there was a complete loss of vision in the right eye, leaving the patient totally and

permanently blind. Medication was changed from phenylbutazone to methylprednisolone, the optic disc swelling subsided, leaving bilateral optic atrophy, and the patient remained otherwise well. A biopsy of the left temporal artery was performed shortly after admission, showing the classical severe intimal thickening and inflammatory changes, with a few giant cells. At the time of discharge from the hospital the patient elected placement in a nursing home in a distant community, and further information about her has not been available.

Case 2

This patient was a vigorous, intelligent, independent 77-year-old widow, first seen December 30, 1959, because of persistent neck pain. Pertinent features included known hypertension and bilateral cataracts for the previous 16 years, successful removal of the right cataract 12 years before and continuing limitation of light and dark perception in the left eye due to the remaining dense cataract. For two years she had typical symptoms of basilar artery insufficiency. There was a three to four month history of aching in the back of the neck, aggravated by neck movement, with occasional tingling over the radial aspect of the right arm and hand. Physical findings included blood pressure 220/106, dense cataract in the left eye, left pupil reacting to light; right iridectomy scar, mild pallor of the right optic disc, and retinal arteriosclerosis. Tendon reflexes in the right arm were less active than those on the left, and there was mild balancing difficulty. Neck movement was limited and produced pain, radiating into the right shoulder. X-rays of the cervical spine revealed advanced arthritic changes. Diagnoses were cervical osteoarthritis, and basilar artery insufficiency due to hypertensive and arteriosclerotic cerebrovascular disease. Weight reduction, dietary management and neck traction were suggested.

The patient's condition remained the same until three and one-half weeks later when she awakened with a persistent dimness of vision in the right eye. Overnight, vision disappeared entirely and she was hospitalized the following day. On examination the only change was increased pallor in the right optic disc, with the finding of right carotid pulsation slightly less forceful than that on the left. Meanwhile treatment had reduced blood pressure to normotensive levels. Anticoagulants were started because of possible right internal carotid artery thrombosis. Temperature was elevated for a few days, with associated upper respiratory infection. After temperature returned to normal, sedimentation rate was 96 millimeters per hour. Within two days after admission temporal artery tenderness was detected, the patient continuing

to describe headaches. Treatment with methylprednisolone was started and resulted in a dramatic clearing of all head pain within 12 hours. Elevated sedimentation rate persisted; steroid and anticoagulant therapy were maintained, with good control of the blood pressure. Anticoagulant treatment was discontinued just prior to the removal of the left cataract several months later, and the patient regained completely useful vision in the left eye, with persistent blindness on the right.

Anticoagulant treatment was never resumed, partly because the blood pressure began to rise to a level of 250/100, but steroid medication was continued. The patient's physician, a specialist in internal medicine, continued close supervision and readmitted the patient to the hospital on November 12, 1960, because of increase in the recurring symptoms of basilar artery insufficiency. At that time the right carotid pulsation in the neck was absent and that on the left was weaker than before. Both superficial temporal arteries were nontender and pulsations were palpable. Complete right optic atrophy was present, and mild pallor of the left optic disc was seen. Blood pressure on admission was 146/70. Sedimentation rate, which had remained persistently elevated, was 118 millimeters per hour on admission. Persistent reduction of the blood pressure was achieved and anticoagulant treatment was again started, with relief of the frequent basilar artery symptoms at that time. The patient was discharged on November 20, 1960.

Shortly after this discharge, the patient was taken to a far distant state by one of her daughters. Subsequent information from the relatives and from the doctor who last attended her revealed that by August of 1961 the patient had deteriorated neurologically, showing mental confusion and further unsteadiness and other symptoms of brainstem damage due to basilar artery obstruction, and she was placed in a nursing home. She died in January, 1962, after two months of inability to speak, generalized edema, a two-plus albuminuria, some persistent anemia and a blood pressure which did not again reach hypertensive levels. Death was thus the end result of a very gradual progressive deterioration, both neurological, cardiac, and renal. No autopsy examination was performed. This case is complex, with the presence of hypertension, probable arteriosclerotic vascular disease and basilar artery insufficiency. Yet, verified temporal arteritis was present, and the pain symptoms were relieved by steroid medication.

Case 3

When first seen in November, 1960, this 64-year-old, right-handed clerk had been in the hospital under the care of his doctor, an internist, since Septem-

ber. The past history was not significant. Two weeks prior to admission the patient had noticed the onset of a right occipital headache which persisted. Night sweats occurred a few times. The headache gradually spread to both frontal areas and the patient himself noticed tenderness in the region of his superficial temporal arteries bilaterally on October 31. Throughout hospitalization he had had a persistent low-grade fever, up to 101 degrees. Steroid treatment had been initiated four days before the patient was seen, and the headache was almost gone.

The examination revealed a pleasant, slightly depressed man who cooperated well. The superficial temporal arteries were thickened and somewhat tortuous bilaterally, but pulsations were still present in all areas except for the left anterior branch. Marked tenderness was still present on the right, minimal on the left and there was slight bilateral carotid artery tenderness in the neck. The remainder of the neurological examination was normal. A sedimentation rate in October was 78 millimeters per minute, and a repeat study was just about the same.

A recommendation for temporal artery biopsy was made, carried out, and provided a typically diagnostic picture (*Figure 1*). Further adjustment of the steroid medication was carried out, with complete relief of symptoms. The patient was discharged from the hospital, and within a short time he returned to full-time work. Steroid medication was subsequently gradually reduced.

The patient did well until August of 1961, still maintained on a small daily dosage of steroid. He began to develop soreness in the ankles and shoulders, aggravated by movement, with minimal swelling. These symptoms became worse and the patient was

again hospitalized by his doctor in November of 1961. Complications of steroid medication were suspected and steroid was discontinued for two weeks. Swelling and soreness in the joints increased during this time, although the patient had attempted to go back to work. He finally had to stop working early in December and was treated with aspirin, with no improvement. The patient was readmitted to the hospital on January 1, 1962, and the joint symptoms remained the same. It was advised that steroid medication be started again and this was done on January 6. Within two days the patient manifested definite improvement, which continued. Neurological examination during this time was entirely normal. The joint mobility improved, although moderate swelling of the knee and ankle joints bilaterally remained. The patient's mood became quite normal as his symptoms subsided and he once again began to feel optimistic. The sedimentation rate on January 2, 1962, was 102 millimeters per hour. The patient was discharged from the hospital and is to continue under close management. A diagnosis of a true polyarthritis, as a complication of the temporal arteritis, was made. By February, joint swelling was gone and the patient had returned to full-time work.

Case 4

This patient was first seen at the request of his physician four days after his admission to the hospital, in March of 1961, at which time he was an alert, 80-year-old active businessman. The referring physician suspected a diagnosis of temporal arteritis. History revealed that the patient had been alert, vigorous and emotionally stable, in basically good

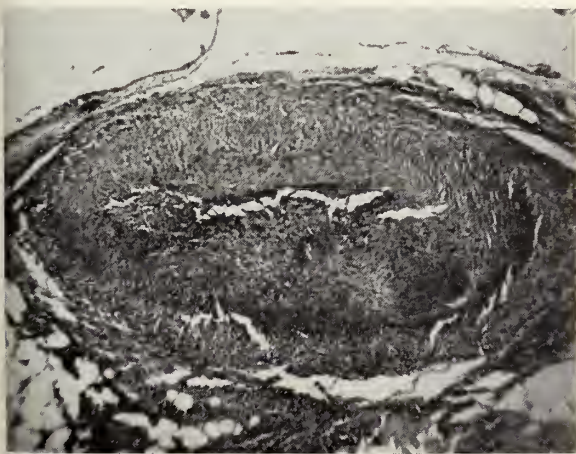


Figure 1 (a). Case 3, low power view of temporal artery biopsy, showing almost complete obliteration of the lumen due to intimal proliferation, with lesser involvement of media and adventitia.

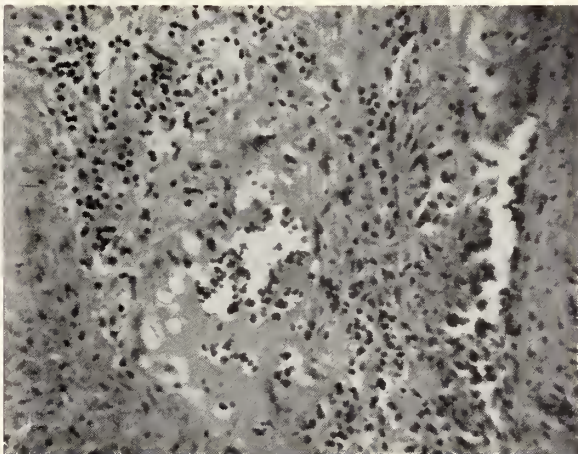


Figure 1 (b). High power view, demonstrating infiltration of intima by inflammatory cells. No giant cells are seen here, but were found occasionally on other sections. The internal elastic lamina was either shattered or absent.

health except for old bilateral deafness, until three months before admission. At that time he began to feel tired every day, slept poorly and complained of nervousness. No headache occurred until about one week before admission, when he awakened one morning with a stiff neck which felt very sore on movement. The following day he noted a bifrontal headache, mainly in the temporal and frontal areas, with some radiation posteriorly. The headache remained severe. On specific questioning, both the patient and his wife agreed that they had never previously noted the prominence of the temporal blood vessels which was found on examination. The examination revealed these bilaterally thickened but compressible slightly tortuous temporal arteries, with good pulsation bilaterally. Tenderness was prominent in the temporal arteries, also detected in the right occipital artery. Other superficial pulses were all satisfactory, except for absent posterior tibials. The remainder of the neurological examination was entirely normal except for the deafness, the patient hearing quite adequately with his hearing aids. There was minimum temperature elevation, to 100 degrees maximum. Sedimentation rate was 92 millimeters per hour. The patient had been started on relatively small doses of steroid, and these were raised, with an excellent relief of symptoms within three days. Temporal artery biopsy was suggested, carried out, and revealed a typical diagnostic specimen. Relief of headache continued, the patient began to feel more vigorous and he was discharged from the hospital shortly thereafter. He has been followed at frequent intervals up to the present time. The steroid medication was gradually reduced over a fairly short period of time and in November of 1961 it was discontinued completely. The patient remained alert, vigorous, and free of symptoms and had promptly resumed his business activities. The sedimentation rate was 43 millimeters per hour on the last examination on February 22, 1962. No complicating symptoms have occurred, and the fundoscopic examination and the visual acuity have remained unchanged. The patient continues under the careful observation of his physician and repeated neurological examinations will be carried out until it is felt that all evidence of activity has ceased.

Discussion

Case 1 provides a fairly classic example of this condition, with the acute onset of headache, a rapid course, and relentless progression to bilateral blindness. The visual symptoms and the findings on serial examinations of the eyes illustrate the effects of retinal artery occlusion, starting with amaurosis fugax, then constant blindness, rapid progression of optic nerve swelling, with exudates and hemorrhages, and

then the subsiding of the swelling, leaving a permanent optic atrophy. The preoccupation of this patient with her headache, with almost a disregard of her blindness, is to be noted as an illustration of the severe stress which the head pain causes for these patients. There was a rapid onset of total blindness in Case 2 also, but here the examination of the eye revealed only a progressive optic atrophy, without any disc swelling, exudates or hemorrhages. The later onset of optic atrophy in the other eye of this woman may well illustrate the effects of involvement of multiple small arteries supplying the optic nerve or chiasm. This is described, with excellent microscopic details, in the studies of Crompton.⁴ This case also illustrates the progressive involvement of the central nervous system, leading to death.

Some of the most fruitful experience is to be gained from long-term observation. The joint involvement seen later in the course of Case 3 is an example of complicating polyarthritis, with frank swelling, as well as pain and limitation of movement. Another type of joint involvement, called "anarthritic rheumatism," with joint pains and stiffness, but no swelling or other signs of arthritis, is also described, but is felt to be rare.¹¹ Thus far Case 4 has remained uncomplicated, presently showing only an elevation of the sedimentation rate. This patient is currently not receiving any medication and is free of symptoms. Continuing observation for an indefinite period is planned for Cases 3 and 4, and the author expects to gain further knowledge and understanding during this time.

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Grenz Ray Therapy

A little-used type of radiation suitable for lesions of the skin

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THERE IS SOMETHING new in therapy, 25 years new. Medical specialties tend to be hermetic; the newer developments lag in diffusing to the other specialties. In some instances, the period of lag may be as long as 26 years. Such has been the case in one phase of radiation therapy . . . the development and utilization of low-voltage, ultra-soft x-rays. The development of supervoltage machines, cobalt-bomb therapy and the advantages of more penetrating radiation are common knowledge to the medical profession and the laity. Knowledge of ultra-soft radiation, so-called grenz rays, and their utility and safety, is restricted to a minority of physicians in the specialty of dermatology.

The era of ultra-soft radiation began in the mid-1920's with Doctor Gustav Bucky, who named these rays grenz (German borderline) rays, feeling them to be on the border between ultraviolet and x-rays in the electro-magnetic spectrum, and qualitatively different from roentgen rays. The name is a misnomer in that with a wave length of one angstrom to four angstroms they are still roentgen rays in their physical properties. Doctor Bucky was also strictly incorrect in that these rays are qualitatively different in biological effect from conventional roentgen rays. However, the softness of the rays does make them so quantitatively unique that one can understand the mistake made by early workers.

The conventional x-ray tube has a wall of glass which prevents the escape of the readily absorbed soft rays. By putting a window of material of low atomic number such as beryllium in the tube, these very soft, long wave length rays are permitted to emerge. The hardness, or penetration, of x-rays emitted is a function of the potential which drives the filament electrons to the target. Therefore, an upper limit to the hardest rays is set, in grenz therapy, by using potentials of from six to 12 kilovolts. Since beryllium-window tubes vary in thickness of the window and in output, grenz rays are defined as those roentgen radiations having a beam that is reduced to one-half its original intensity, by filtration with 34 microns of aluminum or less. This is in contrast with a superficial therapy beam which requires one millimeter of aluminum to reduce its intensity by half; intermediate therapy with a half-value layer of 0.5 millimeters of copper; or deep therapy with

a half-value layer of several millimeters of copper, tin or lead. In therapy of deep seated lesions, increasing the hardness of the beam permits a higher percentage of the surface dose to reach the lesion. For therapy in depth, this is desirable, but for treatment of lesions of the skin surface, the idea is to deliver radiation to the lesion while sparing deeper structures unnecessary radiation.

Though known for 25 years, this type of radiation has not had wide acceptance. Its uses in treating superficial lesions are here discussed.

Reference to Table I shows the depth of penetration into tissue of various forms of radiation, expressed as residua, or percentage of dose as measured at the surface. In radium and contact x-ray therapy, the depth dose diminishes rapidly because of proximity of the source of radiation to the skin, with fall-off largely due to operation of the inverse-square law. With a cathode-ray beam, the electrons are accelerated and penetrate to a uniform depth, before all their energy is expended in producing ion-pairs. The range of electrons is short because they produce a dense path of ion pairs, giving up energy in the process. The depth of penetration is controlled by varying the energy imparted to the electrons by the accelerator. With this apparatus, it is possible to deliver radiation to one sharply defined level of tissue, and spare all underlying structures. It is possible that in the future this treatment may be widely employed for superficial lesions. Present installations are so large and expensive that only a few institutions possess an electron accelerator.

Similarly, shallow ionization results from x-rays with a half-value layer of 33 microns or less, employing readily available apparatus, as we see in Table I. The sharp fall-off has several important implications for therapy. First, it is possible to treat superficial lesions of the scrotum, such as eczema or pruritus scroti, while sparing the underlying testis. Also, lesions of the eyelid are readily treated without danger of excessive dose to the underlying lens and ciliary body. Pterygium has been safely treated by a

TABLE I

Dose at mm. Depth %	Sr. 90 Plaque %	2.5 Mev. Electron Beam %	Radium Gamma Plaque %	Phillips Contact 45 PKV %	100 KV X-rays 1 mm. Al. HVL %	Grenz Rays		
						33 MICRONS AL. HVL %	28 MICRONS AL. HVL %	10 MICRONS AL. HVL %
0	100	75	100	100	100	100	100	100
1	40	100	71	93	94	26	15	10
3	7	75	53	78	73	15	8	1
5	0	50	35	42	62	3.6	1.6	
7		25	23	25	56	0.4	0.1	
10			12	18	45			

mm., millimeter

Sr., Strontium

Mev., Million Electron Volts

PKV, Peak kilovolts

KV, kilovolts

Al., Aluminum

HVL, Half-Value-Layer

dose of 5,000 roentgens-equivalent-physical from a strontium 90 plaque. The dose at three millimeters below the surface is 350 roentgens-equivalent-physical. If ultra-soft x-rays with a half-value layer of ten microns are employed, the surface dose of 5,000 roentgens has dropped to 50 roentgens at a depth of three millimeters, one-seventh of the depth dose from the strontium 90 plaque. The failure of ophthalmologists to use this modality more widely is attributable to the limited diffusion of knowledge concerning these rays.

Next, it is possible to irradiate the most superficial layer of dermis, and spare the blood vessels and glandular elements of the mid and lower dermis. It is this property which makes for the high therapeutic ratio of grenz rays, and the absence of late ulceration and secondary carcinoma. Let us assume that radionecrosis must result from radiation damage to tissue at least as deep as three millimeters, the deeper vascular plexuses of the skin. Damage to the papillae alone will result in a thin, glossy skin, but there will not be late avascular necrosis as long as the mid and deep vascular plexuses are intact.¹

Twenty-five years of careful follow-up has shown that a surface dose of one thousand roentgens of conventional x-ray, fractionated and protracted, gives rise to no sequela whatsoever.² Mild sequela such as dryness may occur after 1,200 to 1,500 roentgens. If the critical depth at which radiation damage must occur is three millimeters and deeper, we can then calculate that the tolerance dose at three millimeters is 730 roentgens. Table II shows the surface doses of rays of various half-value layers which result in a dose of 730 roentgens at three millimeters.

We are being quite conservative here, and it is

quite possible that vascular damage must be even deeper. If the critical level is five millimeters, then Table III shows the surface doses before the tolerance of 420 roentgens at five millimeters is reached. Using these figures, we can see that 300 roentgens, half-value layer 28 microns of aluminum can be given weekly for five years, before reaching the tolerance limit of 420 roentgens at five millimeters depth. Or we may safely administer 300 roentgens, half-value layer, ten microns of aluminum at weekly intervals for 280 years, before we need concern ourselves with late grave sequelae. Since grenz ray exposures for benign diseases are of the order of 200 roentgens to 400 roentgens a week,³ it is apparent that the exposure can be given over a very prolonged period of time. The actual limits of tolerance have never been determined experimentally, but we know that since 1925 there has been not one instance of ulceration or carcinoma resulting from employment of grenz rays in the recommended doses.⁴ This is a fantastic record of safety.

It must be remembered that these rays are x-rays, and that they are capable of doing damage. There are two reported instances of late sequelae,⁵ and these were due to technical error, with doses far beyond that recommended. To employ a pharmacological term, this modality has a large therapeutic index, or ratio. Grenz rays act in the same manner as x-rays; relieving pruritus and reducing local superficial inflammatory processes. Thus, they are employed in treatment of acne,^{6, 7} psoriasis,^{8, 9} lichen planus,¹⁰ and pruritus ani.¹¹ In chronic, recurrent dermatoses, the large tolerance dose permits repetition of courses of treatment, long after conventional x-ray tolerance would have been reached.

TABLE II

SHOWING RELATIONSHIP BETWEEN SURFACE DOSE AND DOSE AT 3 MM., AT DIFFERENT HARDNESSES OF X-RAY BEAM

	1 mm. Al. HVL	33 Microns Al. HVL	28 Microns Al. HVL	10 Microns Al. HVL
Surface	1,000 r.	4,866 r.	9,125 r.	73,000 r.
3 mm. depth	730 r.	730 r.	730 r.	730 r.

mm., millimeter
HVL, Half-Value-Layer

Al., Aluminum
r., roentgens

Grenz rays may also be employed as a caustic or destructive modality. Thus, they have been employed in the treatment of malignancies,¹² common warts,¹³ keloids, and hemangiomas.¹⁴ In treatment of malignancies, scarring is anticipated, because a dose of 3,000 roentgens has to be delivered to the deepest portion of the neoplasm. However, even here there has been no occurrence of grave late sequela during a period of over ten years of observation. This must be attributed to the fact that the sharp fall off means a minimal zone of devitalized tissue around and beneath the treated area.

Finally, these rays are completely absorbed by photo-electric effect, with an absence of secondary radiation or scatter. This means that distant areas of the patient are not subject to undesired radiation. Similarly, the therapist need only stand out of the direct beam of the machine, and be six feet away from the tube. There need not be an elaborate installation of shielding, and there is no hazard to other personnel in the office.

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TABLE III

SHOWING RELATIONSHIP BETWEEN SURFACE DOSE AND DOSE AT 5 MM., AT DIFFERENT HARDNESSES OF X-RAY BEAM

	1 mm. Al. HVL	33 Microns Al. HVL	28 Microns Al. HVL	10 Microns Al. HVL
Surface	1,000 r.	11,666 r.	26,250 r.	4,200,000 r.
5 mm. depth	420 r.	420 r.	420 r.	420 r.

mm., millimeter
HVL, Half-Value-Layer

Al., Aluminum
r., roentgens

Agranulocytosis

Following Monase Therapy

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IN THE PAST TWO YEARS the effective therapy of mental depression using drugs alone has become commonplace. A recent addition to the list of such drugs has been etryptamine acetate, introduced as a monoamine oxidase inhibitor, and marketed as Monase (Upjohn). Although the usual precautions regarding hematologic follow-up have been advised in the circular introducing the drug, no actual cases of agranulocytosis have been reported in the medical literature. Such a case is the subject of this article.

This patient was receiving several other drugs at the time of her granulocyte depression, but only two in addition to Monase seem likely etiologic agents for production of the ensuing blood disorder. Both of these drugs, sulfoxazole (Gantrisin, Roche), and chlorthiazide (Diuril, Merck, Sharp & Dohme) have been given to the patient subsequent to recovery from the agranulocytosis without reproducing the condition. Therefore, the author feels justified in reporting this case as agranulocytosis secondary to therapy with Monase.

Case Report

Mrs. B. C., age 65, had been seen periodically at the Wichita Clinic for more than ten years when she first came under the author's care in January, 1961. Treatment had been administered for a variety of conditions and illnesses including obesity, hypertension, osteoporosis with compression fractures, solitary gallstone, herpes zoster, and congestive heart failure. She had received four separate courses of sulfoxazole for genitourinary infections.

Frank depressive symptoms were recognized in June, 1958, after the death of a grandson. She had lost twenty-six pounds during the preceding weeks and complained of fatigue, generalized pains, nervousness, dizziness and headache. Symptomatic therapy produced slight improvement. More remote past history included a diagnosis of syphilis in 1932 with an apparent negative cerebrospinal fluid. Serologic studies had been negative as recently as May, 1950.

In January, 1961, the author treated the patient for a mild upper respiratory infection. She returned in February with a mental depression of moderate severity along with a blood pressure of 205/110. Therapy with Deprol (a combination of meproba-

mate, 400 mgm with benactyzine hydrochloride, 1 mgm) and with chlorthiazide was instituted. In March she seemed generally improved, but when she next returned on June 15 she presented typical depressive complaints including fatigue, anorexia,

A case report of agranulocytic angina is presented which developed after eight weeks of therapy with monoamine oxidase inhibitor (Monase).

"blackouts," and peculiar eye symptoms. At this time she was first started on Monase in a dose of 15 mgm b.i.d. Four days later she reported by phone that she had noted increased "pep" one day after its administration was begun. She was advised to continue the drug until the next office call, scheduled in six weeks.

On July 11, 1961, a phone consultation with the patient suggested genitourinary infection, and she was instructed to take 4 gms of sulfoxazole daily for ten days. She took this dosage instead for a full fifteen days ending July 26. At this time an office visit revealed that she felt energetic and was sleeping well. She was advised to continue the Monase, 15 mgm b.i.d. Other medications were a hexavitamin (Vigran), chlorthiazide (Diuril) and digitoxin (Purodigin).

One week later on August 2 she again phoned to complain of generalized aching and malaise of nearly one week duration. (This was one day short of seven weeks after the beginning of Monase therapy.) However, the drug was not discontinued until August 8, 1961, at which time the patient was seen on a house call. The aching had persisted, and sore mouth and fever had been present for about three days.

Physical examination revealed a normal pulse and blood pressure, but the temperature was 101.3 degrees. The patient felt fairly alert, not being prostrated by her symptoms. There were three aphthous ulcers in the mouth, one 8 mm in diameter in the right buccal area, the other two along the left buccal ridge. A tender anterior cervical node on the left was the only other significant finding on physical examination. A drug reaction was immediately consid-

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ered and the patient was hospitalized. All former medications were stopped.

Upon admission to St. Francis hospital late on August 8, the suspected granulocytopenia was revealed by a leukocyte count totalling 3,300 cells, 18 per cent of which were segmented neutrophils, while two per cent were "bands." The remaining 80 per cent of the white cells were lymphocytes. A bone marrow examination done on August 10 by Dr. Robert Norris, hematologist, was reported as showing "near absence of granulocytic elements." "Predominant cells were erythroid elements and lymphocytes, both appearing normal in maturation and number." No cells "foreign to the marrow" were seen.

She was placed on parenteral penicillin immediately after the neutropenia was proven, but evidence of infection persisted. This included an acute blepharoconjunctivitis and fever. The eye inflammation gradually responded to antibiotic eye drops and hot compresses. The patient remained febrile throughout the first eight days of her hospital course, with afternoon readings of approximately 101 degrees continuing until August 15. At this time the temperature rose to 104.4 degrees, while on the following day the fever went on up to 105.2 degrees. The penicillin, which she had been receiving in average doses for seven days, was replaced by a penicillin-streptomycin combination containing 0.5 gms of the latter drug, which was given every eight hours. Prednisone 20 mgm q.i.d., was also begun. On August 17 a combination of tetracycline and nystatin (Mysteclin 500 mgm) was administered orally every six hours. However, by this time defervescence was virtually complete with no temperature over 99 degrees being reported thereafter from August 17 through August 26. A spiking fever of 102 degrees on August 28 continued two or three days without explanation. Two blood cultures taken on August 16 and 17 were negative. Urine culture had been negative both on admission and again at the time of the last mentioned fever.

Hematologically the granulocytes were essentially lacking in the peripheral blood from August 10 through August 16 (*Table 1*). Shortly after the highest fever and institution of steroids on August 16 the peripheral blood began to exhibit young forms of the myeloid series. The rather marked leukocytosis led to some suspicion of a leukemic process, but another examination of bone marrow on August 25 showed only marked myeloid hyperplasia, "compatible with recovery phase of agranulocytic reaction."

Healing of the buccal lesions progressed rapidly and was virtually complete on August 29, although a right cervical node was still enlarged. The patient gradually resumed eating, became ambulatory and regained sufficient strength to allow dismissal from the hospital on September 2.

On September 14 she returned to the office as an out-patient. Her appetite had returned and her strength was generally improved. Some nervousness and restlessness were present, and she complained of weakness in the legs. Physical examination showed a moderately elevated blood pressure, while the heart exhibited a normal sinus rhythm with a rate of 100, and frequent premature contractions.

TABLE 1
PERIPHERAL WHITE COUNTS DURING
ACUTE AGRANULOCYTIC REACTION

Date	Total Leukocytes	Granulocytes*			
		SEGS	BANDS	MYELOS	YOUNGS
8-8	3,000	18	2		
8-10	3,400	2	0		
8-12	2,200	4	1		
8-16	2,000	4**			
8-17	2,800	9	11		
8-21	34,900	39	23	19	8
8-23	38,800	64	9	2	3
8-26	20,400	78	7	1	1
8-30	17,000	70	3		

* Expressed as per cent of total leukocytes

** 25 leukocytes only were counted: 24 lymphocytes, 1 segmented neutrophil

There was evidence of weight loss. The examination was otherwise negative. The total leukocyte count measured 7,850, including 59 neutrophils in the differential.

Subsequent office visits have occurred on October 25, November 14, December 15, 1961, and January 8, 1962. There has been no clinical evidence of granulocyte depression, while white blood counts have ranged from 7,850 to 16,800 with granulocytes totalling 59 to 78 per cent respectively. On February 13, 1962, the patient had a total leukocyte count of 10,500 with 63 segmented neutrophils, 4 stab forms, 26 lymphocytes, 3 monocytes, 3 eosinophils, and 1 basophil. The hematocrit was 43 per cent and the hemoglobin 13.2 gms.

Urinary infections have occurred twice since her agranulocytosis (in early November and mid-December). A culture of *E. coli* showing a concentration of more than 100,000 organisms per cc confirmed the infection on one occasion. Sulfisoxazole has been given in each instance in the usual dose of 4 gms daily, for ten days and five days respectively. Symptomatic relief without bacterial studies were obtained on the first occasion, and follow-up cultures were sterile on the second more than three weeks after therapy had been initiated.

Chlorthiazide (Diuril) was begun in a dose of

0.25 gms twice daily on November 14, 1961. This was continued as treatment for her moderate hypertension for approximately seven weeks when it was discontinued by the patient on her own responsibility. At the time of her last visit to the Wichita Clinic on January 8, 1962, she was considered generally well and was advised to return in three months.

Discussion

The author recognized the toxic potential of this new drug when therapy was instituted and intended to obtain a peripheral white count after approximately six weeks of therapy. However, this was not done, and the drug was continued in view of what seemed a striking improvement in the mental state. The symptoms which reflected the onset of bone marrow depression, i.e., aching and malaise, began early in the seventh week on Monase. This had blossomed into a full blown clinical picture of agranulocytosis with stomal ulcerations, regional lymphadenopathy, and fever by the time she was hospitalized one week later. The drug was, of course, stopped at this time. The dosage of Monase was certainly not excessive and, in fact, by present standards would be considered somewhat less than the usual recommended dose.¹

The hospital course was a usual one for acute agranulocytosis of drug origin, the recovery of the bone marrow being attributed to a sublethal injury rather than to any specific therapy employed.

The subsequent administration of sulfisoxazole was not planned, but occurred inadvertently when the patient, unable to reach the author for a few hours one weekend, began her own therapy for the dysuria which had always presaged a urinary tract infection

in her experience. Careful hematologic observation while on this original course of therapy revealed no effect on the peripheral leukocytes. A subsequent urinary infection in December offered a second opportunity to test the drug on this patient. The white blood count and differential count were unaffected when tested immediately after therapy, and also eight weeks following this course of the drug. Chlorothiazide therapy was given for six weeks without consideration of its possible role in depression of the marrow. No provocative test with Monase is contemplated by the author. It is felt that this drug can reasonably be incriminated in the production of agranulocytosis in this instance.

Conclusion

A case of agranulocytosis occurring approximately seven weeks after institution of the recommended dose of a new antidepressant drug, etryptamine acetate (Monase, Upjohn) is reported.

The possibility that a ten day course of sulfisoxazole given concomitantly with the etryptamine could have been responsible for the marrow depression has been ruled out by the failure of two subsequent courses of the sulfonamide to affect the peripheral blood picture. Moreover, chlorothiazide, the only other drug which seems a likely culprit, has been given continuously for six weeks since recovery without incident.

This is thought to be the first reported case of agranulocytosis following therapy with Monase.

Reference

1. Angell, Howard H.: Personal communication.

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

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4. Doe, J. E., What I Know About It, J. Kans. M. S. 54:717-719 (Dec.) 1954.

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C.P.C. ~

Fever, Splenomegaly, Progressive Anemia and Jaundice

Case Presentation

This 43-year-old white housewife was admitted to KUMC for the first time in July, 1959. Her chief complaint was fever of two months duration. She had apparently been well until May, 1959, when she developed easy fatigability, non-productive cough, arthralgia, and daily fever of 101 to 103° F. She was given chloramphenicol for seven days for the "flu," but she failed to respond. She continued to have intermittent fever, progressive anemia, and a palpable spleen. She was referred here for further studies.

She had had the usual childhood diseases without *sequelae*. When she was 22 years old a right ovarian cyst was removed. She had a tonsillectomy at age 29. Her father died at age 65 of renal disease. Her mother was 71 years old and had hypertension. She had six siblings, living and well. The patient was a well developed white woman who appeared pale and acutely and chronically ill. Her blood pressure was 120/75; pulse, 120 and regular; temperature, 101°. The spleen was palpated 4 or 5 cm. below the left costal margin. The examination was otherwise negative.

At the time of her first admission her hemoglobin was 10.2 gm.; reticulocytes, 3.8 per cent. The white cell count was 5,000 with 63 per cent polymorphonuclear neutrophils (61 per cent filamented), 18 per cent lymphocytes, 18 per cent monocytes, and 1 per cent eosinophils. The platelet count was 127,000. A peripheral blood study showed normochromic microcytic anemia. The serum iron was 25 gamma per cent. The serum albumin was 2.91 grams per cent; globulin, 3.03 grams. Liver function studies

were normal. Febrile agglutinins, skin tests, and blood cultures were negative.

During the first hospital admission she had a fever from 101° to 104.4° daily. A liver biopsy and a bone marrow examination were done. A splenectomy was performed on the 12th hospital day. On the 14th day she was started on aqueous penicillin and streptomycin. She became afebrile on the 15th hospital day, and remained so for the duration of her hospitalization. She was discharged in August, 1959.

Her second admission occurred in February, 1960, and her chief complaint was chills and fever. She was a well developed, well nourished woman who appeared pale and chronically ill. Her blood pressure was 117/60; pulse, 92 and regular; temperature, 99.4°; respiration, 24; height 67"; and weight, 132 lbs. The skin and sclerae appeared mildly icteric. The heart and lungs were considered normal. The liver was palpated 3 cm. below the right costal margin and was non-tender. A few scattered telangiectases were noted. The examination was otherwise negative.

The specific gravity of the urine was 1.010; pH, 5.5; albumin, 1 plus; sugar, 0.3 per cent; and much mucus, a few bacteria, occasional rbc and pus cell per high power field were found on microscopic examination. On admission the hemoglobin was 8.8 gm.; hematocrit, 25; reticulocytes, 0.8 per cent; platelets, 24,000; and the white count was 9,450 with 52 per cent polymorphonuclear (47 filamented) lymphocytes, 24; eosinophils, 1; monocytes, 16; metamyelocyte, 1; and myelocytes, 3. During the four months of her hospitalization the hemoglobin dropped progressively to a low of 3.7 gm. four days before death. Most of the time it was maintained from 5-9 gm. only by means of transfusion. There was also a progressive drop in the platelet count from 80,000 to 3,000, but the white count remained essentially unchanged. The sedimentation rate was 37 mm. in one hour. The VDRL was non-reactive. The BUN was

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13; creatinine, 1.5; and uric acid, 2.2 mg. per cent. The serum sodium, 136; potassium, 4.5; chlorides, 97; CO₂, 25; calcium, 4.7; and phosphorus, 2.1 mEq per liter. On admission the alkaline phosphatase was 2.5 millimol units; total bilirubin, 1.6 mg. per cent; direct bilirubin, 0.6 mg. per cent; BSP, 13 per cent retention at 45 minutes; cephalin flocculation, 4 plus; thymol turbidity, 22 units; serum albumin, 2.84 grams per cent; serum globulin, 3.90 grams per cent; cholesterol, 105 mg. per cent with 21 per cent esters; prothrombin time 72 per cent of normal. One week before death the alkaline phosphatase was 3.1 millimol units; total bilirubin, 7.1 mg. per cent; direct bilirubin 4.4 mg. per cent; cephalin flocculation, 4 plus; thymol turbidity, 17 units; serum albumin, 2.04 grams per cent; serum globulin, 3.55 grams per cent; total cholesterol 84 mg. per cent with 17 per cent esters. Five days before death the SGOT was 687 units; total bilirubin, 14.3 mg. per cent, direct bilirubin 9.7 mg. per cent; serum iron, 153 gamma per cent with 100 per cent saturation of iron binding capacity; LAP, 109 units; serum amylase, 58 units; and lipase 0.5 units. The LE preparation and Coombs' test were negative. The twenty-four hour urine urobilinogen determination on the 19th hospital day was 108.7 mg.; three weeks before death, 12.9 mg. The urine porphobilinogen was 0.3 mg. and 0.2/100 ml. on two occasions. Coproporphyrins and uroporphyrins were negative. In the glucose tolerance test the fasting blood sugar was 103 mg. per cent; one hour, 229; two hour, 191; and three hour, 140 mg. per cent. The first, second and third-hour urine specimens contained 0.5 per cent glucose. The thyroid I¹³¹ uptake was 12 per cent in 24 hours. A "rheumatogram" showed C-RP, 3 plus; ASO, 125 units; mucoprotein, 400; Weltmann, 7; and the latex particle fixation was positive. The serum electrophoresis showed a serum albumin of 38 per cent; alpha₁ globulin, 7 per cent; alpha₂ globulin, 11 per cent; beta globulin, 12 per cent; and gamma globulin 33 per cent. The heterophil was positive in a dilution of 1:7. Febrile agglutinins were negative. Numerous blood cultures were taken, and a coagulase negative hemolytic staphylococcus albus was isolated from three different broth cultures. Bacillus anetratum was isolated on two occasions in broth media. Bone marrow cultures and gastric washings were negative. E. coli and Aerobacter aerogenes were cultured from the urine on two occasions with counts greater than 100,000 organisms per milliliter. The PPD and histoplasmin skin tests were negative.

The patient's temperature continued to range from 100 to 104° daily. On the 11th hospital day hydrocortisone was started in a dose of 80 mg. daily. She was afebrile for the next five days, but the fever sub-

sequently developed again and remained up until the last eight days of her life. Fluid and caloric intakes were satisfactory. The anemia was progressive, and she required 32 transfusions over the four-month period of her hospitalization to maintain the hemoglobin between four and eight grams. During the last three months she complained of severe shooting pains in her extremities, episodic abdominal pain associated with mild abdominal distention and an epigastric mass. These symptoms usually coincided with bouts of high fever. During the last few weeks of her life she required narcotics to relieve the pain.

A liver biopsy and three bone marrow examinations were done, but were not helpful. Numerous medications were given without benefit. She was digitalized because of progressive liver enlargement, tachycardia, basilar pulmonary rales and pedal edema, but little improvement was noted. Her condition slowly and progressively deteriorated. During the last two weeks of life she developed increasing jaundice, anorexia, lethargy and epigastric pain. The lethargy progressed to mental confusion. She finally became comatose and died quietly on the morning of her 121st hospital day.

Dr. Mahlon Delp (moderator): Are there questions for Dr. Shane?

Mr. Leland Kaufman (student):* Were any nucleated red cells seen in the smear of peripheral blood?

Dr. Stanley Shane (resident in medicine): None were reported, but I'm sure that there were nucleated red blood cells in the peripheral blood at the time.

Mr. Ronald Palmer (student): Did she have any skin eruption or herpes zoster?

Dr. Shane: No.

Mr. George Wurster (student): Any familial history of anything like this?

Dr. Shane: The family history is completely negative.

Mr. Kaufman: Could you describe the epigastric mass?

Dr. Shane: It was usually associated with bouts of high fever and tachycardia, and was felt to be about 5 to 8 cm. below the xiphoid process. It was firm and tender. It would wax and wane in size on various days.

Mr. Palmer: Was there any protrusion of the umbilicus or any dilated veins on the abdomen?

Dr. Shane: None were noted.

Miss LaDene Terry (student): Were the red cells survival times done?

Dr. Shane: No.

* Although a student at the time of this conference in December, 1960, he, like the others referred to as students, received the M.D. degree in June, 1961.

Miss Terry: Was there a flapping tremor terminally?

Dr. Shane: None was noted.

Mr. Claudius Smith (student): Were there any abnormal skin pigmentations, purpura, or ecchymoses?

Dr. Delp: There was bleeding, Mr. Smith, at the sight of venapunctures or intramuscular medication if this helps any.

Mr. Smith: Was a blood ammonia level ever done?

Dr. Shane: No, it was not.

Miss Terry: Was there any chest pain terminally?

Dr. Shane: She complained of shooting pains in her extremities and abdomen and of generalized aching, but nothing of significance as far as chest pain was noted.

Mr. Smith: Was a red cell fragility test done?

Dr. Shane: No.

Miss Terry: How long had she been sick before her first admission here?

Dr. Delp: In talking to this patient after she had been here several weeks, I found out that the year before her admission, she had gone to visit relatives in the Ozarks on Memorial Day, and at the time the family commented as to how bad she looked; and specifically they said that she looked pale. She was a very stoical woman, but she had difficulty in getting her work done a year before she ever consulted a physician.

Mr. Smith: What were the patient's findings just before death?

Dr. Shane: She had rales, predominantly on the right, for about six to eight weeks before her death. There was nothing else significant.

Mr. Smith: Did they get progressively worse?

Dr. Shane: They would vary from day to day.

Mr. Palmer: Was there any history of bleeding such as hematemesis, melena, excessive menstruation in her history or during her hospitalization?

Dr. Shane: There was a history of a prolonged menstrual period in December of 1959, but not an unusual amount of

flow, otherwise there was no significant bleeding.

Mr. Palmer: Was there a history of exposure to any toxic agents?

Dr. Shane: None.

Dr. Robert W. Brown (internist): Was there anything unusual about her color?

Dr. Delp: I really do not think there was, Dr. Brown. If there was anything striking it was her persistent pallor, and this was fused with the icterus which she had later on. All right, let's see the electrocardiograms. Miss Terry.

Electrocardiograms

Miss LaDene Terry: The first EKG was taken on the initial admission in July of 1959. The rate is approximately 100. There is a normal sinus rhythm. The PR intervals and the QRS intervals are within normal limits. I would interpret this as being a normal tracing. The next one was taken on her second admission in February, 1960, the rate is approximately 120. The PR and QRS intervals are within normal limits. I would interpret this EKG as showing sinus tachycardia. The third (*Figure 1*) was taken on May 31 close to her death. Again the rate is approximately 120. The QRS intervals are within normal limits. The T waves are flattened in all of the chest leads,

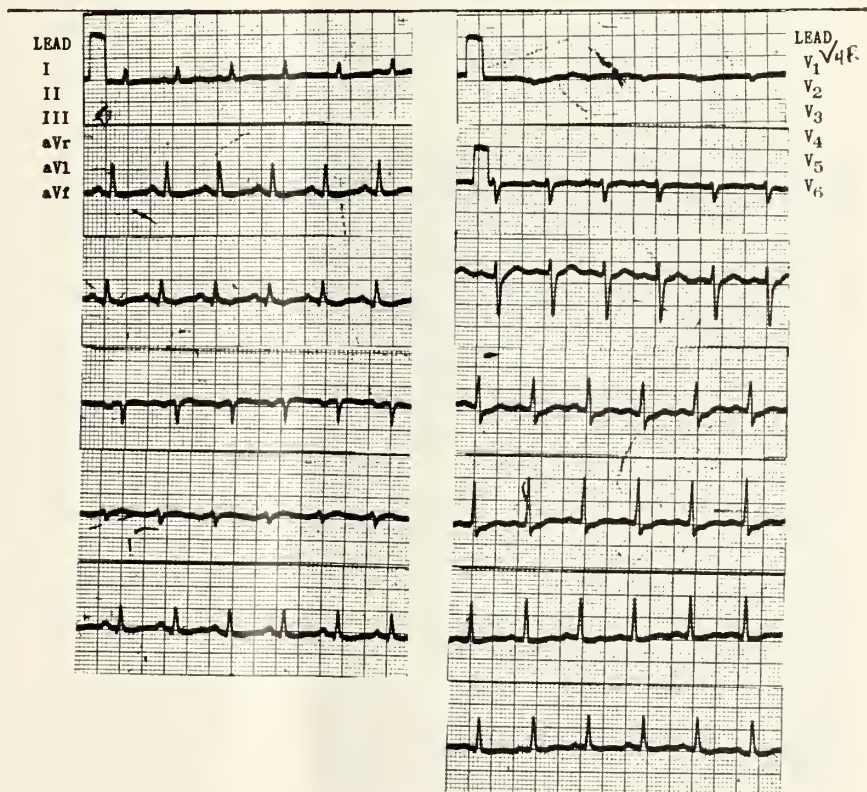


Figure 1. Electrocardiogram made on May 31.

particularly in V-4 and V-5, with some suggestion of ST segment depression. This could suggest myocardial ischemia or digitalis effect. I would interpret it as showing sinus tachycardia with nonspecific T wave changes.

Dr. Delp: Thank you. Now let us have the x-rays.

X-Rays

Mr. Lyle Steiner (student): The first two films were taken on the first admission in July, 1959. The KUB shows a normal skeletal structure. The psoas shadow on the left is normal; that on the right is not outlined. The gas patterns are essentially normal. The left kidney seems to be not enlarged. The spleen lies up about the top of the film and projects down below the 11th rib. This film shows a mild to moderate splenomegaly. The next film is a chest film that is essentially normal. The chest film taken on the second admission in April of 1960 shows a normal contour of the diaphragms. The cardiac shadow is within normal limits and the chest is clear. Another chest film taken in May of 1960 (*Figure 2*) again shows normal costophrenic angles. There is a rather generalized increase in the cardiac size. There is an infiltrate in the lungs, more predominant in the bases, which is compatible with the pneumonitis or edema. The last film is a lateral of the same date showing essentially the same findings cardiomegaly and infiltration compatible with pneumonitis or pulmonary edema.



Figure 2. Chest film made in May, 1960.

Dr. Delp: We will begin the discussion with Mr. Wurster's differential diagnosis.

Differential Diagnosis

Mr. Wurster: The differential diagnosis will be based on fever, splenomegaly, progressive anemia and jaundice leading to death in one year. The first group of disorders to be considered are the infectious diseases. Subacute bacterial endocarditis may present with fever, anemia and splenomegaly. We have no history of rheumatic heart disease, and heart murmurs usually occur in subacute bacterial endocarditis. Since our patient received multiple transfusions we have to consider homologous serum hepatitis, but believe that this would be a complication of the patient's illness rather than the primary diagnosis. Sarcoidosis may produce fever, hepatic and splenic enlargement and unexplained anemia. I rule this out, however, on the lack of hyperproteinemia and typical x-ray findings.

The next group of disorders to be considered are the collagen diseases. Systemic lupus erythematosus presents an attractive diagnosis because of the patient's compatible age and sex. Arthralgia is present in 90 per cent, splenomegaly in 20 per cent, and anemia is common. Tests of "rheumatic activity" and LE cells can usually be demonstrated in these patients. Our patient did not have any renal involvement, jaundice is rare in this disorder, and she had a negative LE preparation.

Iatrogenic diseases must be considered. Our patient gave a history of being treated with chloramphenicol. In view of the known bone marrow toxicity of this drug we must seriously consider a toxic or hypersensitive reaction. Our patient's symptoms and clinical course could be explained by chloramphenicol depression of the bone marrow. I cannot definitely rule this out, but I think we have a more likely diagnosis. Hemochromatosis must also be considered because of the history of the blood transfusions. She also had an abnormal glucose tolerance test, elevated serum iron, and iron binding capacity. Signs of hemochromatosis usually begin to occur when total body iron stores reach 20 grams, the amount usually contained in about 80 units of blood. Our patient received a total of 45 units of the blood. She did not have a history of skin pigmentation. Furthermore, hemochromatosis does not explain the early course in this patient's disease.

I would next like to consider some of the diseases that are considered as lipidoses and metabolic diseases. Gaucher's disease is a rare familial disorder characterized by gradual onset and a protracted course. Enlargement of the spleen is usually the first symptom and a high percentage of these patients develop

hypersplenism with resultant hemolytic anemia, leucopenia, and thrombocytopenia. Hyperpigmentation is present in 50 per cent, and a myelophthisic anemia may occur. Jaundice can also occur in this disease. This is an attractive diagnosis, but I exclude it because of family history, atypical course, and a history of fever in our patient which usually does not occur in Gaucher's disease. Niemann-Pick's disease is a rare disease of infancy and, therefore, I rule this out. The triad of eosinophilic granuloma, Letterer-Siwe disease and Hand-Schüller-Christian disease must be considered. Eosinophilic granuloma is relatively benign, and it occurs mainly in children and young adults. Hand-Schüller-Christian disease can be excluded because of the absence of multiple round defects in the skull, exophthalmos and diabetes insipidus which are characteristic of this disease. Letterer-Siwe's disease occurs in children under three, so I rule it out.

In considering the anemias, acute and chronic blood loss is excluded because we have no history of either. Congenital and deficiency anemias are unlikely because of lack of an appropriate history. Acquired hemolytic anemias are difficult to rule out, but we do so on the basis of the laboratory evidence and the clinical course. The patient's blood picture is compatible with bone marrow depression, but we have no history of exposure to toxic agents other than the chloramphenicol. There is no evidence of carcinoma either primary or metastatic. However, diffuse carcinomatosis could have caused her anemia.

I would like to consider the lymphoproliferative diseases next. There was no lymphadenopathy to point to lymphocytic leukemia, nor did she have clinical manifestations or typical blood picture. Monocytic leukemias are ruled out on absence of a typical blood picture and characteristic bone marrow changes. I consider multiple myeloma unlikely because of lack of hyperproteinemia and renal involvement. The lymphomas may present with many manifestations our patient had, and often the pathologic diagnosis is necessary to determine which form the patient had. The presenting symptom in lymphoma is most often painless lymphadenopathy with minimal constitutional symptoms. In Hodgkin's disease, which comprises one-third to one-half of all lymphomas, splenomegaly may, however, be a prominent manifestation. Our patient's symptoms and clinical course are compatible with Hodgkin's disease, especially Hodgkin's sarcoma, if it is progressive and leads to death within a year. I cannot rule this disease out.

Next, I'd like to consider the myeloproliferative diseases. The diseases in this group are closely related and have as their basic pathogenesis the concept of a myelo-stimulating factor acting upon the primitive reticulo-mesenchymal cells of the bone marrow. The

multiple potentiality of the primitive reticulum cells accounts for various transitional intermediate and mixed forms of the hematologic manifestations of this disease. The spectrum of this group varies from acute and chronic myelogenous leukemia, megakaryocytic myelosis, polycythemia vera, erythemic myelosis, erythroleukemia, leukemic reticuloendotheliosis, and myelofibrosis. Of these, leukemic reticuloendotheliosis is an attractive diagnosis for our patient. This variant has the general appearance and characteristics of leukemia with hyperplasia of the reticuloendothelial cells and the appearance of reticulum cells and histocytes in the blood. Our patient had an insidious onset with weakness, fever, anemia, splenomegaly, abdominal pain, hepatomegaly, leukopenia, thrombocytopenia and death one year after onset of symptoms. This is compatible with this phase of the myeloproliferative diseases. Bone marrow aspirations usually prove difficult, but when successful yield 30 per cent to 90 per cent reticulum cells. In addition, reticulum cells are easily demonstrated in the peripheral blood, liver, spleen, lymph nodes and bone marrow. The acute course clinically resembles acute leukemia while the chronic course simulates myelofibrosis. Acute and chronic myelogenous leukemia is another phase of the myeloproliferative diseases. This seems to be good diagnosis, but our patient did not have the typical hematological picture, and we think she was in another phase of the myeloproliferative disorder.

Acute megakaryocytic myelosis may present with a similar picture demonstrated by our patient. There was an extensive megakaryocytic infiltration of marrow, liver, spleen, and other organs. Section of bone marrow revealed alternating areas of fibrosis and megakaryocytic hyperplasia. Such phases are generally temporary and soon converge into one of the other phases. Our patient does not present a picture of polycythemia vera. This example of mixed and transitional myeloproliferative disorder is characterized by an increase in circulating red cells, increased granulocytes, and precursors of both of these cell types are frequently seen in the peripheral blood. This phase usually goes on to further evolutionary developments, most frequently resulting in continued overgrowth of fibroblasts in the bone marrow, so that aspiration of the marrow is no longer possible. Splenomegaly and hepatomegaly occur with extramedullary hematopoiesis. The anemia becomes very severe, and the originally high levels of leukocytes and platelets fall, and death occurs from the anemia, infection and hemorrhage. In erythemic myelosis, erythropoietic tissue seems to be involved rather than leukopoietic tissue. Erythroleukemia is a rare variant or phase of this disease, and appears to be a combined neoplastic hyperplasia of both the erythroblastic and

leukoblastic tissues. In the majority of patients with myeloproliferative diseases the fibrotic phase is the most common, and our patient's picture most closely resembles the myelofibrosis stage. In 1879, Hex associated fibrosis in the marrow with a blood picture resembling chronic granulocytic leukemia. Myelofibrosis has since become increasingly recognized. It is a chronic progressive disease characterized by splenomegaly, hepatomegaly and a chronic anemia usually without lymphadenopathy. Clinically the disease is characterized by an insidious onset of aching pain for which no definite cause can be found. These patients have easy fatigability, weakness, abdominal distress and weight loss; and some cases have fever. There is a regular increase of fibroblastic and bony tissue of the bone marrow. Our patient's sternal marrow was aspirated with some difficulty, and may have yielded but little bone marrow. There is a constant occurrence of extramedullary hematopoiesis and an enlarged, firm spleen. Usually there is enlargement of the liver and occasionally of the kidney, adrenals, pancreas, pituitary and lymph nodes. The chronic anemia, in which there is considerable variation in size and shape of the red cells, is refractory to all methods of treatment. Red cell fragility may be increased. Reticulocytosis is usually not present except in cases simulating hemolytic anemia with jaundice, and the white cells are usually not elevated. Jaundice is present in cases in which the liver is involved. The x-ray picture is often one of irregular increase in the density of the spongiosum of the long bones and throughout the flat bones as well as decreased density of the cortex of the long bones. Many etiologic factors have been postulated by various authors. Extrinsic poisons such as benzol and carbon tetrachloride, pre-existing liver disease, endocrine disease, cardiovascular disease, tuberculosis, and chronic hemolysis or hemorrhage are other things that may have perhaps caused damage to the bone marrow through direct toxic action or metabolic deficiency giving rise to secondary hyperplasia of fibroblastic tissue. In the treatment transfusions have proved to be only temporary in effect, and x-ray and splenectomy are contraindicated unless hypersplenism or thrombocytopenia is present. Splenectomy frequently leads to tragic results, many patients dying in a comparatively short time following the operation. Roberts suggests several complications of splenectomy when performed for a myeloproliferative disorder. These include increased susceptibility to infection and occurrence of intravascular hemolysis. The prognosis is very poor with an average survival time of only a few years—ranging from less than one year to 17 years. My final diagnosis, then, is a myeloproliferative disease in the myelofibrotic stage. The immediate cause of death was intractable anemia with

resultant heart failure complicated by septicemia.

Dr. Delp: Thank you, Mr. Wurster. Now let us see if the unlikely has happened and there is some disagreement among the panel. Mr. Kaufman?

Mr. Kaufman: I think this patient was in the myelofibrotic stage. She may, however, have gone through the previous phases of this disease of which we have no record or history.

Dr. Delp: Mr. Smith.

Mr. Smith: In myelometaplasia, there may or may not be a fibrosis of the bone marrow. A suppression of the blood cell production is possible, however, so myelometaplasia is not ruled out on the absence of fibrosis of the bone marrow.

Dr. Delp: Mr. Wenger.

Mr. Bruce Wenger (student): I think it could possibly be a lymphoproliferative disease, possibly Hodgkin's disease.

Dr. Delp: Mr. Palmer.

Mr. Palmer: Myelofibrosis complicated by homologous serum jaundice.

Dr. Delp: Mr. Steiner.

Mr. Steiner: I think it's a lymphoma complicated by hepatitis and other infections.

Dr. Delp: Miss Terry.

Miss Terry: Hodgkin's disease.

Dr. Delp: Now let's see if we can explain some of the symptoms that this patient had. They are symptoms which were extremely puzzling to everyone who saw her. Kaufman, what about this patient's pain? She had severe abdominal pain. Looking at the patient, one would have to assume that this was excruciating pain. We can measure it crudely because she required narcotics almost each time she had it. This was abdominal pain that came down both legs.

Mr. Kaufman: I think the abdominal pain can be explained on two bases. It may have been ischemic pain or abdominal angina or it may have been the very sudden onset of hepatomegaly and the stretching of the liver capsule. I think that the leg pains are most likely explained by the myelofibrosis in which there is an expansion of the medullary portion of the veins of the bone due to the fibroblastic proliferation. This can eventually lead to periosteal irritation and intractable, severe bone pain.

Dr. Delp: Mr. Wenger.

Mr. Wenger: I go along with the explanation of the abdominal pain. The leg pain could be due to involvement of the nerve roots.

Dr. Delp: Miss Terry.

Miss Terry: In Hodgkin's disease there has been reported pain similar to this that required narcotics for relief due to internal irritation of the nerve roots or compression of the vertebral column.

Dr. Delp: Mr. Kaufman, do you have any addi-

tional comments about the splenectomy on this patient?

Mr. Kaufman: It was justifiable after consideration that a hemolytic process or hypersplenism or thrombocytopenia was present and splenectomy could be justified on that basis.

Dr. Delp: Thank you, thank you very much. Mr. Smith, can you think of anything else that might have been a complication of this splenectomy, can you think of anything that does happen to patients following splenectomy that might become a part of this patient's picture?

Mr. Smith: Sometimes, an increase in platelets occur in a splenectomy.

Dr. Delp: Mr. Steiner.

Mr. Steiner: If there was extramedullary hematopoiesis with an aplastic marrow this would be unfortunate. If there was any portal hypertension I think removing the spleen without shunting the blood might possibly result in collaterals with hemorrhage from esophageal varices.

Dr. Delp: Miss Terry, can you think of any complications with infections which would come about because of the splenectomy?

Miss Terry: No, other than an increased susceptibility to infection which our patient could have had.

Dr. Delp: What about this patient's corticosteroids? Do you have any comment about the administration of these? She had tremendous doses of corticosteroids over quite a long period of time.

Mr. Kaufman: Well, we didn't have much information on our protocol, but in the various reviews we read there had not been a single report of a permanent remission from corticosteroids. The possibility of an infectious process secondary to splenectomy is definitely a consideration in this patient and, in addition, the administration of steroids in the phase of infection might possibly be disastrous.

Dr. Delp: Mr. Smith, you people were thinking of chloramphenicol here as being an offending agent, are you able to dismiss it?

Mr. Smith: No, I don't think so.

Dr. Delp: Mr. Palmer.

Mr. Palmer: I think that, since the patient was already presenting her complaints when she first got the chloramphenicol, we can dismiss it.

Dr. Delp: Dr. Rasmussen, will you tell us about the case.

Pathological Report

Dr. Peter Rasmussen (pathologist): First of all, grossly the striking findings were the jaundice and the large liver which weighed approximately 2400 grams and showed evidences of hemosiderosis and of the various types of surgery she had had. In addition,

there was one other striking finding. This consists of rather discrete "infarcts" (and I use the word in quotes) of area of bone.

Nothing of importance was found in the spleen other than enlargement of the littoral cells which line splenic sinuses. No bacteria were found in the spleen. The spleen weighed about 700 grams and was rather smaller than one would expect in a classical case of myeloproliferative disorder where the spleen is usually immense and probably represents that variant of chronic granulocytic leukemia characterized by a large spleen.

Grossly the liver showed deep brown discoloration of the parenchyma reflecting the large amount of hemosiderin which was present. In addition, the liver was rather flabby. A Perle's stain of the liver confirms an intense deposit of iron throughout the entire parenchyma. Much of it is found in phagocytes and reflects considerable necrosis of liver cells which ordinarily contain much stored iron. Where hepatic necrosis is less obvious there is an extensive infiltration of mononuclear cells (*Figure 3*) which I believe we can call reticulum cells or histiocytes. These were present in great abundance throughout most sections of the liver and in many respects resembled the sinusoidal infiltrate which is seen in granulocytic leukemia. A

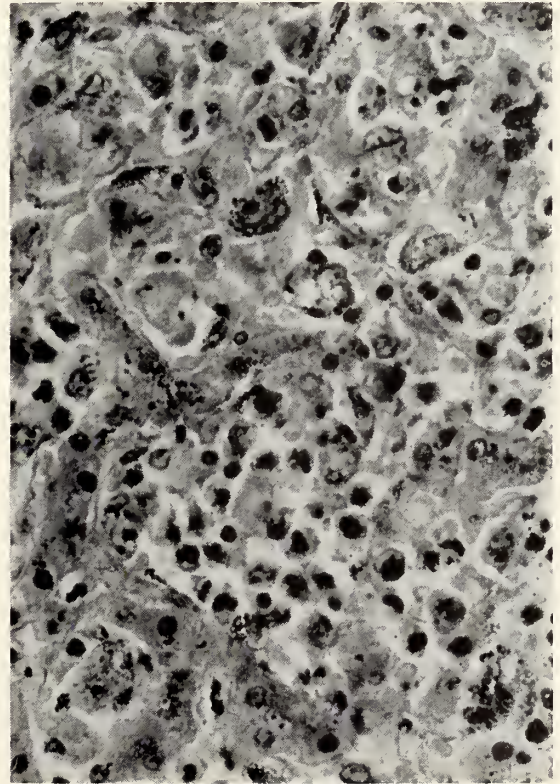


Figure 3. Liver: Intense proliferation of histiocytosis and infiltrate of plasma cells.

higher power view of the liver shows one such area where there is extensive replacement of liver cells by ingrowth of these mononuclear cells.

The shooting pains which were apparently the first perplexing symptom can be explained on the basis of the bone infarcts or areas of coagulation necrosis to which I have alluded previously. In such areas we found considerable fibroblastic proliferation and fibrosis with only rare islands of persistent hematopoiesis. In addition there were occasional foci of osteoblastic activity and osteoid deposition.

In most sections of bone the marrow spaces did not exhibit fibrosis but are marked by extensive overgrowth of the marrow by reticulum cells and plasmacytes (*Figure 4*). The extensive megakaryocytic proliferation usually considered a hallmark of myeloproliferative disorder was not demonstrated in this case either in the bone marrow or in the peripheral areas where extramedullary hematopoiesis can occur. A few fairly normal foci of hematopoiesis were encountered and representatives of all blood elements. In them erythropoiesis was particularly prominent.

In the bone marrow it was rather easy to find large numbers of gram negative bacteria which were being phagocytized by the highly proliferating reticulum cells. I believe that this patient undoubtedly had a

terminal septicemia. This would also account for the acute focal necrosis in the liver and the tremendously elevated SGOT. The pathological evidence certainly does not support viral hepatitis because the areas of necrosis are much larger than we ordinarily associate with that disease. Admittedly, the reticulum cell overgrowth was so great that I would be hard pressed to rule out viral hepatitis absolutely.

The lymph nodes were only slightly enlarged and showed no basic destruction of architecture. In *Figure 5* is shown a node illustrating the capsule and peripheral sinuses to be crowded with plasma cells and histiocytes containing abundant amounts of hemosiderin. There were medullary areas of the node which showed numerous lymphocytes and lymphoblasts with plasma cells intermixed. The plasma cells were adjacent to the capsule, and there was extensive reticulum cell overgrowth in the lymph nodes. The lymph nodes also showed abundant erythropoiesis with small normoblasts scattered in clusters throughout the parenchyma. The lymph nodes seemed to contain more erythropoietic tissue than the bone marrow. The abundant hemosiderosis in the lymph node probably reflects the large numbers of transfusions given and perhaps even an acquired hemolytic process. Also there was abundant erythrophagocytosis in the lymph nodes.

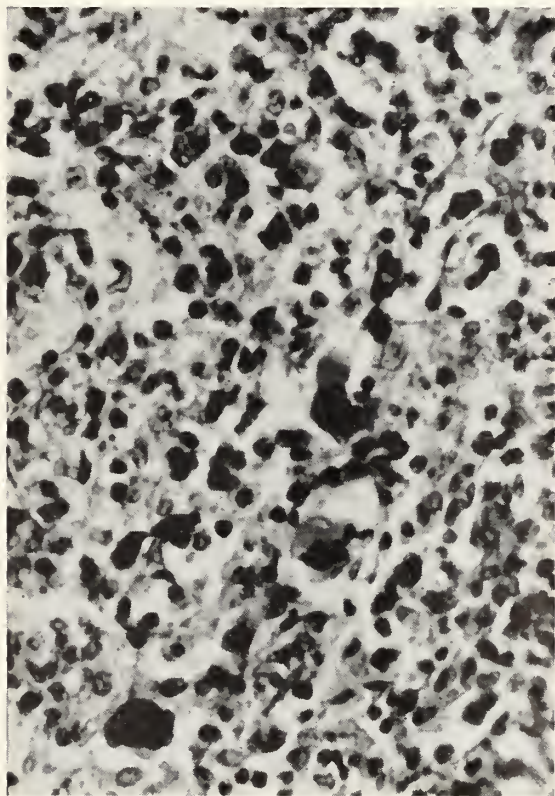


Figure 4. Sternal Bone Marrow—Diffuse proliferate of histiocytes with a few scattered megakaryocytes.

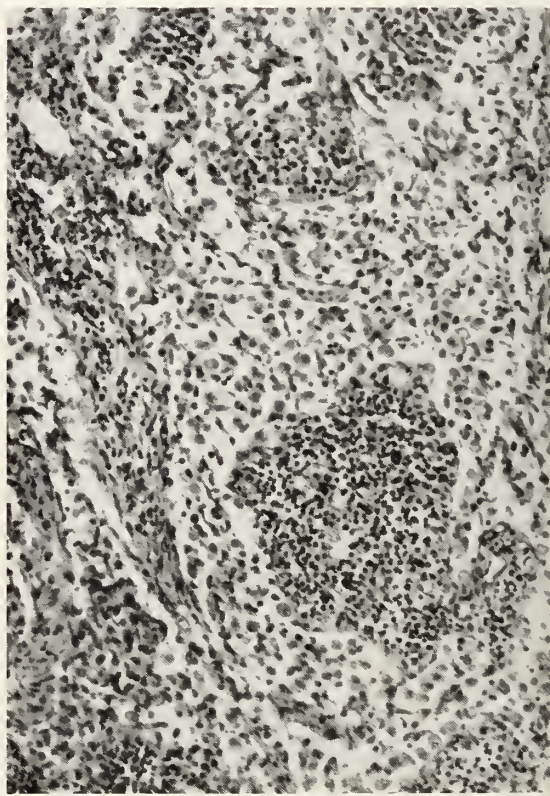


Figure 5. Lymph Node: Medullary and sinusoidal proliferation of histiocytes.

Terminally, in addition to the bacteria in the bone marrow, there was extensive hemorrhagic bronchopneumonia with large numbers of red cells in the alveoli. Both neutrophils and histiocytes were present in some alveoli. There was some organization of the exudate and fibroplastic proliferation, with the large number of neutrophils in the exudate. Clumps of bacteria were difficult to find.

We believe this to be an entity which may be classified under the term systemic reticuloendotheliosis. By that we infer an overgrowth of reticuloendothelial cells throughout the marrow spaces and in the lymph nodes and spleen. There was overgrowth of reticulum cells. The marrow depicted this in a striking manner. One could say that this was an adult form of Letterer-Siwe disease. I believe that the myelofibrosis that we saw really had nothing to do with the disease besides representing reaction to the necrosis. I do not believe that this was basically a myeloproliferative disease, megakaryocytic hyperplasia or so-called agnogenic myeloid metaplasia. This would then represent some quasineoplastic process or perhaps even a neoplastic process which overwhelmed the patient.

A number of cases similar to this have been reported, the first of which was by Scott and Robb-Smith, who gave this entity the name of histiocytic medullary reticulosis. They described large areas of necrosis in the lymph nodes with abundant erythrophagocytosis. The anemia in this respect could be considered hemolytic. Since Robb-Smith's first description of four cases there have been several cases reviewed in the literature. Some of these have been called aleukemic systemic reticuloendotheliosis which near the end of the patient's life blossomed into a monocytic leukemia. The idea² has been developed that leukemia may not uncommonly blossom from a basically aplastic anemia picture with islands of reticulum cell overgrowth eventually becoming confluent to break into the peripheral blood. Such did not occur in our case.

I looked at the bone marrow samples obtained about a month after the patient had received chloramphenicol and discovered considerable hyperplasia, predominantly erythrocytic type, so that at least a month after the chloramphenicol, aplasia had not occurred. After about six months, however, there were three or four bone marrow aspirations done, but no marrow was obtained except for peripheral elements among which were numerous so-called monocytoid cells which I believe were well represented on the sections of bone marrow which we have seen here.

This strongly suggests the process which we have seen in the bone marrow of our case today to be one of secondary repopulation.

We feel that the normal myeloid elements of the marrow had been removed and were ultimately replaced by reticulum cell or histiocytic overgrowth, in a manner similar to overgrowth of the bacterial flora of the respiratory passages by gram negative bacilli after the normal gram positive inhabitants have been removed.

Pathological Anatomical Diagnosis

Systemic reticulum cell proliferation and plasmacytosis of the bone marrow and liver.

Acute necrosis of the bone marrow and medullary bone with surrounding focal fibrosis.

Focal extramedullary hematopoiesis of lymph nodes, moderate and liver.

Hemosiderosis of accessory spleen, lymph nodes, liver, and bone marrow.

Acute bronchopneumonia.

Acute focal necrosis of the liver with generalized fibrosis.

References

1. Robb-Smith, A. H. T. In: *Recent Advances in Clinical Pathology*. 1st Ed. London, 1947. p. 368.
2. Marshall, A. H. E. *An Outline of the Cytology and Pathology of the Reticular Tissue*. Charles C Thomas, Springfield, Ill. 1953. pp. 178-182.

A survey of physicians by *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians, asked which medium of communication they find most effective. Of the more than 5,000 who responded, 40 per cent indicated a preference for publications such as journals and books, 23 per cent preferred courses in postgraduate or continuing medical education, 19 per cent chose discussion with colleagues, 14 per cent cited medical meetings, while 4 per cent preferred programs for physicians on FM radio and closed-circuit television.

Briefs from Poison Control Centers

Editor's Note: The JOURNAL is pleased to publish this as one of a series of short articles devoted to experiences in a Poison Control Center. This one is submitted by the Center at KUMC. Others would be welcomed from any of the Poison Control Centers over the state.

**CHARLES E. LEWIS, M.D. and
J. E. CHAPMAN, M.D., Kansas City***

Following are reports of recent cases seen or advised at the University of Kansas Poison Control Center. These accounts are intended to illustrate the point that common household or medicine chest items cause grave concern when ingested.

During the spring we have had an increasing number of calls concerning the ingestion of bleach by children, typified by the following case report.

Case 1. A three-year-old caucasian male was seen in the emergency room after having ingested an estimated 250 ml of Clorox bleach 20 minutes prior to the emergency room visit. On admission, physical examination revealed a number of mouth and tongue lesions which were bright red and inflamed. Vomiting occurred spontaneously. There were no other abnormal physical findings. Milk was given by mouth. Tap water lavage was carried out 25 minutes after admission to the emergency room. Thirty ml of milk of magnesia was left in the stomach at the end of lavage. Recovery was uneventful.

The toxicity of the common bleaching solutions, Clorox, Purex and Sani chlor is related to the three to six per cent solutions of sodium hypochlorite that they contain. Sodium hypochlorite is corrosive to the same degree that corresponding concentrations of sodium hydroxide are corrosive. Hypochlorous acid is released where sodium hypochlorite reacts with acid. Hypochlorous acid is extremely irritating to mucous membranes. There is very low systemic toxicity to hypochlorous acid because it is rapidly inactivated

by serum. Thus, the principle effect of these agents is irritation of the mucous membranes. Ingestion causes severe irritation to the point of corrosion of mucous membranes of the mouth, esophagus and stomach, depending upon contact time and concentration of the offending agent. Edema of the larynx is possible and can be life-threatening, especially in the very young. The patient must also be observed for pulmonary edema inasmuch as the respiratory mucous membrane is also vulnerable. Treatment consists of removal of the toxic agent with due attention to the possibility of the corrosive effects of sodium hypochlorite, supportive care and adequate follow-up observation. The instillation of milk or milk of magnesia over the oral, esophageal and gastric mucous membranes is also of help. Acidic antidotes are contraindicated because of the above noted conversion of sodium hypochlorite to hypochlorous acid. Other therapy is symptomatic.

Case 2. A two-year-old white female was brought to the emergency room about 20 minutes after having ingested an unknown quantity of boric acid ointment. The patient had no abnormal physical findings. The patient was lavaged with tap water and dismissed to be observed by her parents.

Boric acid is toxic to all cells, the degree of toxicity depending upon the concentration at any given tissue site. Highest concentrations are reached during excretion, hence renal toxicity is of special importance in instances of boric acid intoxication. Preventive toxicology is especially important with boric acid because it is available in so many forms, as powders, liquids and ointments. The mortality rate in advanced boric acid intoxication approaches 50 per cent. There

* From the Departments of Pharmacology and Preventive Medicine and the Poison Control Center of the University of Kansas Medical Center, Kansas City.

is no antidote; lavage and supportive measures are the only therapy available. In more severe intoxications, the use of peritoneal dialysis or the artificial kidney may be considered.

Case 3. A five-year-old caucasian female was admitted to the emergency service asymptomatic with a history of having eaten two castor beans. The physical examination was normal. Vomiting had occurred spontaneously prior to admission.

The case was brought to our attention because of the potential danger of the ingestion of even one castor bean, especially if the bean is chewed thoroughly. If the beans are not chewed acute poisoning is unlikely because in most cases the seed coat prevents absorption of a toxic amount of ricin.

If the toxic ingredient, ricin, is absorbed it causes hemolysis of red cells and is also quite toxic to other cells—especially the mucous membrane of the gastrointestinal tract.

An important point to remember is that toxicity may be delayed from one to three days after ingestion. The early symptoms relate to gastrointestinal irritation and hemolysis. Hemaglobinuria may then become a problem. For this reason alkalization of the urine is recommended. There is no antidote and treatment is symptomatic. This case was lavaged and observed—there were no symptoms that would indicate intoxication.

The non barbiturate hypnotic agents have been involved in a number of potentially toxic ingestion problems brought to our attention. In the following cases Noludar and Doriden have been the agents in point.

Case 4. At least ten tablets of Noludar (200 mg/tablet) were ingested by a 26 year-old-negro female. The patient was examined in the emergency room in a semicomatose state. The exact number of tablets and the time of the ingestion was not available. Physical examination revealed a semicomatose negro female. Respirations 12 per minute; heart rate 150 per minute. Deep tendon reflexes were hypoactive but present. The patient would respond to painful stimuli. Pharyngeal reflex was present.

The patient was lavaged in the emergency room with tap water and admitted. Recovery was uneventful.

Noludar (methypylon) and Doriden (gluethi-

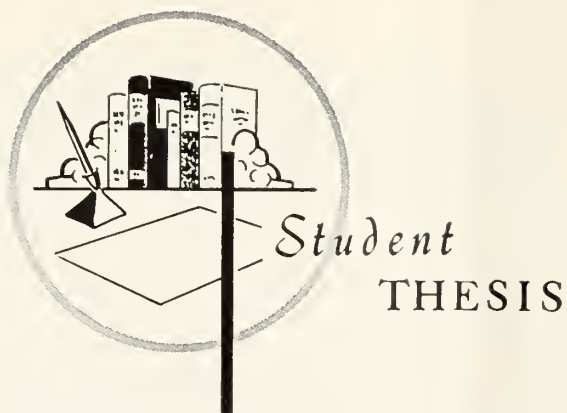
mide) are non barbiturate central nervous system depressants that produce a depression of the central nervous system in a descending order from the cerebral cortex to the medulla with resultant depression of the respiratory center and death from respiratory arrest. In non fatal cases diminished respiratory excursion and reduction in the cough reflex predispose to pulmonary congestion and pneumonia.

Treatment consists of effective removal of the toxic agent, taking due care to avoid aspiration pneumonia during lavage, and support of respiratory and cardiovascular function. We believe that analeptic stimulants are rarely if ever indicated. The same precautions concerning storage and use pertain both to the non barbiturate sedatives and barbiturate sedatives.

Case 5. A two-year-old white male was admitted to the emergency room after having ingested an unknown quantity of Prestone Antifreeze. The ingestion was reported to have occurred about 20 minutes prior to admission and there were no abnormal physical findings on admission. Tap water lavage was completed. The patient was observed in the emergency room for two hours and discharged home for further observation. The patient never manifested any of the symptoms of the agent.

The toxicity of Prestone is due to its content of ethylene glycol. Ethylene glycol has a general depressant effect on the nervous system similar to the effect of ethyl alcohol. An additional and more serious problem with ethylene glycol is its metabolic product, oxalic acid which can cause severe damage to the brain and kidneys, causing cerebral edema with convulsions and renal failure respectively. The oxalic acid reacts with calcium to produce calcium oxalate crystals which may be found in the brain or kidneys in fatal cases. Hypocalcemic tetany is possible because of the formation of calcium oxalate from serum calcium and oxalic acid. Treatment procedures follow the usual well recognized lines of lavage, supportive therapy and observation with one exception, the exception being the availability of calcium gluconate, an antidote for the very toxic oxalic acid. This source of calcium will remove the oxalic acid as calcium oxalate. The patient should be carefully observed for cerebral and pulmonary edema as well as anuria and subsequent uremia.

Early lavage in this case could have very well prevented a serious problem from developing.



The Effect of Colchicine on Purine Metabolism in Gout

FIRMIN E. SNODELL, M.D., St. Louis*

THE ROLE that uric acid plays in gout has long been realized but only since the advent of the use of radioactive tracer compounds in the study of intermediary metabolism have definite steps been taken to determine the etiology of this apparent inborn error of metabolism. Colchicine has long been considered the drug of choice in alleviating the symptoms of the acute gouty attack; however, an established relationship between the effects of this drug and the hyperuricemia in gout has yet to be made. In a previous paper I have reported that colchicine was capable of exerting some effect on uric acid formation in tissues of the rat, this effect being an apparent stimulation of uric acid formation by intestinal tissue, *in vitro*. More recently Zimmerman and his associates have shown that the small intestine is one of the principal sites of uric acid formation in the dog. This study was undertaken to determine the significance of this stimulation and also to determine the effects of colchicine on the conversion of potential uric acid precursors to uric acid by the rat intestine.

Materials and Methods

Male albino rats with weights varying from 180-240 grams were used throughout the experiments. After sacrificing the animals the small intestines were removed and immediately perfused with Krebs-

Ringer phosphate buffer and then sliced into 0.5 cm. strips. 1.0 gram of the tissue strips was placed in flasks containing 10.0 ml. of Krebs-Ringer phosphate buffer. The flasks were then incubated for two hours at 30° C. in a Dubnoff metabolic shaking apparatus with air as the gas phase. After incubation, 5.0 mg. of sodium carbonate were added to insure complete solubility of the uric acid and then the flasks were heated for five minutes in a boiling water bath to stop the reaction. The contents of each flask were then homogenized, filtered, and aliquots of the supernatant were taken and assayed for uric acid by the enzymatic method of Praetorius.

The substrates used (see Table II) were chemically pure and were added in sufficient quantities to obtain a final concentration of 12.5 micromoles per gram of tissue. The concentration of colchicine when used was 1×10^{-3} molar.

Results

In the first and second columns of Table I are shown the endogenous uric acid present within the rat intestine and that which appears after the intestine has been incubated for two hours. The last column shows the results of adding colchicine to the tissue medium.

Table II summarizes the results showing the ability of the rat intestine under *in vitro* conditions to convert various purine compounds into uric acid and the effects of colchicine in altering these reactions. It is apparent from this table that the rat intestine can convert various purine compounds to uric acid and

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Snodell is now serving internship at the St. Mary's Group of Hospitals.

TABLE I

URIC ACID PRESENT WITHIN RAT INTESTINE INITIALLY WITHOUT INCUBATION, AFTER TWO HOURS INCUBATION IN KREBS-RINGER PHOSPHATE BUFFER, AND AFTER TWO HOURS INCUBATION IN THE PRESENCE OF COLCHICINE. VALUES ARE EXPRESSED IN MICROMOLES OF URIC ACID PER GRAM OF INTESTINE

<i>Before Incubation</i>	<i>After Incubation</i>	<i>After Incubation With Colchicine</i>
0.48	3.45	3.55
S.D. 0.27	S.D. 0.30	

S.D. = Standard Deviation

this is evident when xanthine, inosine, inosine monophosphate (IMP), and guanosine are added as substrates to the tissue media. On the other hand when adenine was added as a substrate no significant quantity of uric acid appears in the tissue medium in excess of the control (*Table I*). When adenosine is added as a substrate there is a small but significant increase over the control.

In a majority of the experiments colchicine shows little effect in stimulating or inhibiting the conversion of substrates to uric acid when both are present in the media; however, there are significant changes in the conversion of hypoxanthine and its riboside (inosine) to uric acid in the presence of this drug. In the former there was a 37.5 per cent increase in uric acid formation while in the latter there was a 34.6 per cent reduction in the conversion of this compound to uric acid.

Discussion

These data are interpreted as evidence that the intact intestine of the rat is capable of producing relatively large quantities of uric acid under *in vitro* conditions. In addition, the intact intestine was found to convert uric acid precursors to uric acid, and this conversion was influenced to a certain degree by the presence of colchicine. The effectiveness by which the rat intestine accomplishes this must certainly be regulated by innumerable factors. The absence of specific enzymes within mammalian tissues may explain the relatively poor conversion of some of the purine compounds to uric acid. Adenine shows no significant conversion to uric acid and it has been shown that there are insignificant quantities of adenine deaminase activity in mammalian tissues to allow this compound to be completely oxidized to uric acid. Normally adenine is oxidized to 2,8-dihydroxyadenine by xan-

TABLE II

THE CONVERSION OF URIC ACID PRECURSORS TO URIC ACID BY THE RAT INTESTINE AND THE EFFECTS OF COLCHICINE ON THIS CONVERSION. VALUES ARE EXPRESSED IN MICROMOLES OF URIC ACID PER GRAM OF INTESTINE

<i>Substrate</i>	<i>Control</i>	<i>S.D.</i>	<i>Substrate With Colchicine</i>
Xanthine	11.10	0.60	10.60
Xanthosine	5.64	0.05	5.70
Hypoxanthine	7.38	0.50	10.15
Inosine ¹	8.35	0.45	6.20
IMP ²	9.03	0.61	9.17
Adenine	3.76	0.12	3.88
Adenosine	4.62	0.15	4.77
Guanine	6.00	0.30	6.02
Guanosine	13.20	1.80	12.50
AICA ³	3.60	0.43	2.80

¹ Hypoxanthine Riboside

² Hypoxanthine Riboside Monophosphate

³ 4-amino 5-imidazolecarboxamide

S.D. = Standard Deviation

thine oxidase and is excreted as such in lower animals and man.

Miller and his associates have shown that AICA (4-amino 5-imidazolecarboxamide) can be incorporated into purine bases by the rat. More recently further studies have shown that it is capable of serving as a precursor in purine biosynthesis by pigeon liver extracts and that man can convert this compound to uric acid when administered orally. Since AICA was not converted to uric acid by the isolated rat intestine one may postulate that the chief reactions that are taking place in these experiments are for the most part catabolic in nature and that the uric acid formed is derived from preformed purine compounds present within the intestine. If this is the case then one would not expect to see any increased production of uric acid by the addition of a base precursor. It has further been suggested that this precursor in its free form does not react with formate to form hypoxanthine but that ribose phosphate is added to the structure of this compound and it is this ribotide that reacts with formate to yield inosine monophosphate. Further experiments with the rat intestine using the carboxamide ribotide may help to clarify this point.

The effects of colchicine on the uric acid production by the rat intestine in the presence of certain substrates is interesting in that this compound has an apparent stimulatory effect on hypoxanthine in the formation of uric acid and an inhibitory effect on its riboside toward uric acid conversion. The action of

colchicine has largely been limited to its specific analgesic and antipyretic action in the acute gouty attack, its neurotropic action in lower animals, and its inhibitory effects on animal and plant mitoses. Consequently, from the known physiological and biochemical properties of colchicine no adequate explanation of this phenomenon can be presented here. These data do suggest that there are enzymes other than xanthine oxidase that play major roles in the oxidation of the ribosides of xanthine and hypoxanthine to uric acid.

The data presented here indicate that the intestine may play a major part in the formation of uric acid in such diseases as gout. It is conceivable that colchicine, when administered during an acute gouty attack, may have as its target organs such tissues as the gastrointestinal mucosa where it is capable of altering certain phases of purine metabolism. Organ systems having high turnover rates of nucleic acids

such as the gastrointestinal tract merit consideration in explaining the etiology of the hyperuricemia of gout.

Summary

The rat intestine is capable of producing relatively large quantities of uric acid and under *in vitro* conditions is able to convert various purine compounds to uric acid. Colchicine is observed to stimulate the oxidation of hypoxanthine to uric acid by the rat intestine and also to inhibit the conversion of inosine, the riboside of hypoxanthine, to uric acid. No adequate explanation of this phenomenon can be offered presently but it is suggestive that colchicine may exhibit its therapeutic properties in gout by altering some phase(s) of purine metabolism.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

WALTER REED MEMORIAL ESSAY COMPETITION

Junior and Senior students of all medical schools in this country have been invited to submit entries to "The Annual Walter Reed Memorial Essay Competition of the Brooklyn Hospital," according to Dr. Abraham G. White, Director of Medical Education. Three cash prizes will be offered: a \$1,000 prize, a \$750 prize and a \$500 prize. The closing date for entries for this year's competition will be March 1, 1963. Essays should be from 5,000 to 10,000 words in length and submitted in triplicate. The essay competition so named in honor of Dr. Walter Reed, a resident in the Brooklyn Hospital in 1872, will be an annual event. The prize-winning essays will be the property of the Brooklyn Hospital for suitable publication.

"Our aim," according to Dr. White, "is to encourage creative imaginative thought and excellence in its written expression. We have chosen the junior and senior years because these represent the really first exclusive commitment of the student to clinical training, and because habits of cultured writing established well at this time, will, we believe, be enduring. We hope that the reflective, integrative and creative intellectual processes involved in writing a prize essay even at the third and fourth year level will make these years more memorable. Also, the concern with fine polished writing should encourage the student's efforts in an area which many present day educators believe sorely needs strengthening.

Emphasis should be placed on a clinical topic rather than one dealing primarily with the basic sciences. The student may use experimental data derived from personal researches, but there is no intent in any way to limit the subject material, which may fall within any branch of clinical medicine or surgery. Thus, an essay may be based on personal clinical observation of an unusual case or group of cases. Alternatively, the student may wish to review critically problems of pathogenesis, diagnosis or the treatment of disease.

The committee of judges who will select the final winners comprises: J. Arnold deVeer, M.D., Director of Laboratories, The Brooklyn Hospital; John L. Dusseau, Vice President and Editor, W. B. Saunders Company; Dickinson W. Richards, M.D., Professor Emeritus of Medicine, Columbia University, College of Physicians and Surgeons. Essays should be sent to: Abraham G. White, M.D., Director of Medical Education, The Brooklyn Hospital, 121 DeKalb Avenue, Brooklyn 1, New York.

The President's Message

DEAR DOCTOR:

The U. S. Senate decided recently to table the amendment to provide hospital and nursing care for those over 65 years of age. This decision delayed the forces who are interested in this form of care under Social Security.

These forces will reappear at the next session of Congress when another bill will be introduced. Knowing that this condition will exist, it is important for us to use the intervening period to plan and concentrate on the measures we are to take.

One of the most important measures is to support those congressmen and senators who have supported us. Support should also be given to those who agree with our individual philosophy in this area to see that they are elected to these offices.

I believe that it becomes necessary for each of us to express our confidence with words and funds to these men who are our friends in Washington. I trust each of my colleagues in the Kansas Medical Society has the same belief and will turn this belief into action.



Norton L. Francis M.D.

President



Editorial COMMENT

Health Care for the Aged

The Senate defeat (52-48) of the administration sponsored health care for the aged program disposes of this issue until after the November elections. Consider what this means.

Health care of the aged is now a campaign factor of major proportions. The question is not if, but what type of health care shall be provided. And, in November the voters will decide. So Congress has given the question back to the people. Once they speak at the polls conclusions will be drawn and the rest is formality.

The decision stands between a compulsory program under Social Security and whatever alternative can be devised. Proponents of the administration have a clear platform spelled out in the form of a thoroughly publicized bill. The other side has a philosophy favored, for the present, by the majority in the belief that a better program is possible. By November the voters may elect on the basis of programs rather than philosophies so it becomes necessary to consider this factor.

It is very well to favor free enterprise over socialist controls. In its broad sense most Americans will agree, a little like they profess approval of the Ten Commandments and now and again break one or another of them. It is very well to appeal for economy with which almost everyone approves and at the same time pauperizes himself through installment purchases because benefits now to be paid for later are somehow not debts. It is very well to support a benefit limited to those in need but human nature has the capacity to find a need if the benefits are available.

The average voter wants to hold to a set of ideals he associates with this country but he will buy almost anything if it looks like a bargain or if he can pay for it later. Health care is the issue at point but the problem arises from the way people view all their purchases. The complexity and certain other factors associated with health care, such as its necessity and its unpredictable nature, exaggerate its significance and compound the error that can arise from emo-

tionally stimulated proposals. The great issue, in the opinion of more than one person, is not health care as such but an irresponsibility on the part of a few and an apathy on the part of many concerning fiscal integrity. Perhaps people simply do not understand.

Costs are disguised in every possible manner. An article at \$3.99 sells more readily than when priced at \$4.00. In the field of health care, insurance may have contributed to a general misunderstanding about true costs. The average person may even yet compare his hospital bill with hotel rates. He often fails to separate drug and hospital costs from his medical expense. It is the well informed citizen who relates his fees for health service to the reduction of time lost for illness. Not everyone is successful in excluding emotion from his consideration of health. Therefore, this easily complies as a ready-made political issue.

Nevertheless, economic hazards of illness represent a major threat to security and because physicians have a special knowledge of this fact they long ago developed plans to enable the public to plan protection against such problems. The special issue raised over the aged is one more phase, acute at the moment, but essentially no different from the entire problem, that is now laid out to the voters for solution.

Spreading the risk through insurance techniques is one means of lowering individual cost. Blue Shield is an example, but even in this doctor-operated program the cost of care for senior citizens has been disguised to where almost half their expenses are carried by the younger subscribers. Authorizing tax deductions for insurance premiums and providing subsidies where deductions fail to cover such costs represent a way in which the government could participate toward aiding senior citizens on the basis of their needs.

Implementing the Kerr-Mills bill is another possibility. To date the Kansas Legislature has expressed little interest in this federal-state matching program, so if physicians believe in this formula they should now make that known to all candidates for legislative posts. The Society at this time has only a vague

idea of details it wishes to recommend, such as income exemptions on eligibility, but does have a House of Delegates expression favoring the Kerr-Mills bill for this state.

So, the next two months represent a most crucial period because after that time the public, by their vote, will determine the issue. This time the stakes are high. The public must be informed so they can choose wisely. If medicine does not tell the true story, then the public can obtain its opinion only from those who know less. The time is now and the responsibility rests with each doctor to advise everyone he can contact.

It has been said by the AMA, and most truly, proponents of socialist planning may lose again and again in the hope of winning once. Those who fight to preserve free enterprise, be it in the field of health care or anything else, can lose one time only.

Hospital Beds in the United States

The Health Information Foundation of New York published some statistics on hospital beds in the United States that might be of interest to physicians who have had an occasion to consider this subject. No attempt will be made to evaluate whether there are enough or too many beds, nor will any local statistics be given because interpretation of information cannot be made without considering a variety of local conditions. This, therefore, is a national picture.

In 1909 the American Medical Association reported there were in the United States 4,359 hospitals with a total of 421,000 beds. This represented a ratio of 4.7 beds per 1,000 population.

In 1940 the population had risen, but hospital construction had risen at a much greater pace. In this year there were 1,226,000 hospital beds, giving a ratio of 9.3 beds per 1,000 population. This ratio, therefore, doubled between the years of 1909 and 1940.

An even greater expansion of hospital construction occurred during the war years, until in 1945 there were 1,700,000 beds and the ratio was 13 beds per 1,000 population. Since the war there has been a gradual decline. In 1960 the United States had a total of 1,658,000 beds in 6,876 hospitals, for a ratio of 9.2 beds per 1,000 population.

During these years the role of the federal government in providing hospital facilities expanded greatly. In 1909 there were 71 federal hospitals with 8,827 beds, representing 2.1 per cent of all hospital beds in the United States. In 1940 the federal government operated 8.9 per cent of the total beds and in 1944 the federal government had 551,000 hospital beds. This declined by 1960 to 177,105 beds, or 10.7 per cent of the total. Among federally oper-

ated hospitals, the Veterans Administration has 120,288 beds, or 67.9 per cent; the armed forces have 36,686 beds and the United States Public Health Service 9,637 beds.

In 1960 there were 639,057 general non-federal hospital beds in the United States. Since these are intended for short-term patients, they account for 92 per cent of all hospital admissions.

When all categories are considered, the ratio of beds per 1,000 population in 1960 was highest in the heavily populated Northeastern part of the country. There were just under 12 hospital beds per 1,000 population. The Middle Atlantic states showed a ratio of only slightly less; the North Central states, in which Kansas is grouped, averaged 9.54 beds per 1,000 population. The lowest area was represented by the states directly south of Kansas. They had 7.33 beds per 1,000 population. When only short-term general hospital beds are considered the national ratio is 3.55 beds per 1,000 population, an increase of less than two-tenths of a bed per 1,000 population during the last 15 years. It seems surprising that this should be in view of the increased hospital construction that appeared to be evident during this time.

Tuberculosis Screening Programs

The nation's school children are receiving far from uniform protection against tuberculosis, despite the availability of "effective eradication procedures," a survey by the American School Health Association has disclosed.

Only nine states provide their school children with tuberculosis screening programs which fully meet the Association's standards, the chairman of its Tuberculosis Committee, Dr. J. Arthur Myers, reported at the annual meeting of the National Education Association.

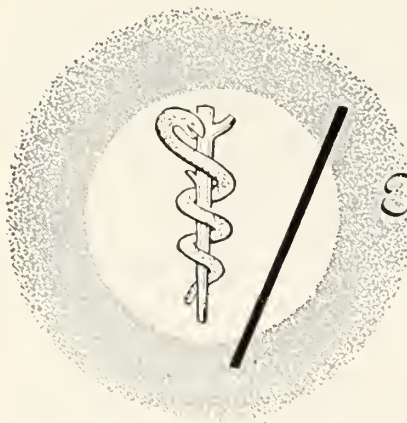
Dr. Myers, a leading Minneapolis chest physician, stated that the nine states are Arkansas, Georgia, Illinois, Iowa, *Kansas*, Minnesota, Missouri, Montana and North Dakota.

Nearly 250 children under 14 years of age were killed by tuberculosis and several thousand additionally were disabled by the disease in the United States last year, Dr. Myers said.

"These tragedies resulted not from medical ignorance but from community complacency," he declared. "The tuberculin test offers all schools a practical means to screen their students for tuberculosis. The test identifies all persons who are harboring the germs of tuberculosis."

In order to alert educators to the "urgent need" for

(Continued on page 364)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

KEEPING A PRINCIPLE IN MIND

The fight between the Kennedy administration and the American Medical Association over Kennedy's medical care for the aged plan is one which involves more than whether older people should receive medical care.

In fact, there is no disagreement in this area. The physicians represented by the AMA have said repeatedly that no elderly person is going to be denied medical care because of inability to pay. This is a tradition as old as medicine itself.

The controversy involves actually the specter of socialism—more accurately, that of what many see as socialized medicine. This is quite different from the humanitarian care of elderly people who are ill. Thus the AMA, in mustering every force it can to defeat the Kennedy-backed King-Anderson bill, is NOT opposing adequate treatment and care of the aged.

The battle must be fought on grounds upon which the President has placed it: in the political arena. If this means the physicians must plunge into politics to defeat something they see as detrimental to the country's medical welfare, they apparently are prepared to do so.

The number and tone of resolutions emerging from the AMA's 111th annual meeting attests to their willingness to fight for a principle. The principle, incidentally, has little to do with whether aged people should be entitled to medical care. We know of none, either among the medical profession or the rolls of Congress, who opposes care of the ill, whether they be young, adult or aged.

Yet, this issue has been injected into the fight—we suspect, deliberately—by those who want the King-Anderson bill for perhaps more reasons than its "humanitarian" results. The culprit: politics—politics of a breed seldom played with more cunning and

deliberation. It is against the political cunning and power of an administration some have called a "dynasty" that the AMA has sounded its call to battle.

It is of interest, incidentally, that one of the top men in this fight between giants is a former Kansas newspaperman who is not exactly unaccustomed to directing fire. Jim Reed, former executive editor of *The Daily Capital*, has been in the middle of the AMA's medicare fight from its inception. As head of the organization's communications division, he has played a major role in determining what tactics must be used in fighting a battle against such a formidable opponent.

Only time will tell which side wins. Clearly, victory is important to both sides. Equally clearly, one or the other will win. It is hoped that in winning the fight, the principle involved is not cast aside so completely that victory brings only the smell of battle. From where we sit it would appear the AMA intends to hang onto its principle, win or lose.

Mr. Kennedy says the same thing, but some of his past performance (steel fight—"we want business co-operation") could make one wonder.—*Topeka State Journal*, June 29, 1962.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

**John W. Armstead, Jr.,
M.D.**
1011-B Cleveland
Wichita, Kansas

Ruth Lapi, M.D.
K. U. Medical Center
Kansas City 12, Kansas

S. L. Rosenberg, M.D.
K. U. Medical Center
Kansas City 12, Kansas

A. J. Beatty, M.D.
5935 Reinhardt Drive
Mission, Kansas

James C. Warren, M.D.
K. U. Medical Center
Kansas City 12, Kansas



Personalities—IN KANSAS MEDICINE

E. P. Carreau, Wichita, attended the American Thyroid Association meeting in New Orleans in May. He also spoke before the Hi-12 organization at the Lassen Hotel in Wichita recently, giving the Medical Society's views on the King-Anderson bill.

Newly elected trustees of the Kansas Psychiatric Society are **Alfred P. Bay**, Topeka, and **George Zubowicz**, Osawatomie. **Howard Bair**, Parsons, was named alternate delegate.

C. M. Dunshee has moved from Russell to Wichita where he has begun a four year surgical residency at the St. Francis hospital.

W. Clarke Wescoe, chancellor of the University of Kansas, was re-elected to the American Medical Associations' council on medical economics and hospitals.

Robert G. Rate, Halstead, attended a meeting of the Board of Regents and Board of Directors of the International College of Surgeons held in Chicago in June. Dr. Rate is the Kansas Regent for the International College of Surgeons.

Among those who participated in a meeting of the Governor's Committee on Employment of the Handicapped at Hadley Memorial hospital, Hays, were **Dwight Lawson** and **Robert P. Woods**, both of Topeka.

Glenn R. Peters, Kansas City, spoke at the June meeting of the Young Republicans of the Kansas City area. His subject was the medicare program.

Alex Scott, Junction City, is replacing **W. A. Carr**, also of Junction City, as medical advisor of the Selective Service Board of Geary County.

Physicians in charge of the second part of the polio immunization program for Douglas County residents were **James Mott**, Topeka, and **R. L. Pendleton** of Baldwin.

Tom R. Hamilton of the University of Kansas Medical Center staff has been named a diplomate of the American Board of Pathology. The announcement was made in July.

Roger D. Warren, Hanover, attended a surgery meeting sponsored by the American Medical Association in Chicago in June.

Howard Lamborn, Oskaloosa, attended the American Medical Association meeting in Chicago in June.

Joseph A. Budetti, Wichita, is the author of an article "The Vasomotor Rhinitis Syndrome" which was published in the *Transactions of the American Society of Ophthalmologic and Otolaryngologic Allergy* in October 1961.

Dean Collins, acting superintendent of Winfield State Hospital, moved to Topeka the first of August to begin his duties with the Kansas Neurological Institute.

Richard Gruendel, Kansas City, has just completed a three year orthopedic residency and is now associated in practice with **Philip C. Nohe**, also of Kansas City.

From the Stacks

State Medical Library

MRS. BETTY CULLEY, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

RECENT ACQUISITIONS

- Baer, Rudolph. Yearbook of dermatology, 1961-1962. Yearbook Pub. 1962.
Bryan, William J. Religious aspects of hypnosis. Thomas. 1962.
Cantor, Alfred J. Control of constipation. Messner. 1962.
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Sharp, John J. Complete denture prosthodontics. McGraw-Hill. 1962.
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MONOGRAPHS AVAILABLE IN THE LIBRARY

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McCombs, Robert Pratt. Internal medicine, 2nd ed. Yearbook Pub. 1960.
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Watson, C. J. Outlines of internal medicine, 8th ed. Brown. 1955.
Wohl, Michael G. Long-term illness; management of the chronically ill patient. Saunders. 1959.
Yater, Wallace M. Fundamentals of internal medicine, 4th ed. Appleton. 1954.

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- Clark, Randolph L. The book of health; a medical encyclopedia for everyone. Elsevier Press. 1953.
Cullen, Stuart C. Manual of medical emergencies, 2nd ed. Yearbook Pub. 1953.
Jarvis, DeForest C. Folk medicine; a Vermont doctor's guide to good health, 1st ed. Holt. 1958.

Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.



Book REVIEWS

PSYCHIATRY, BIOLOGICAL AND SOCIAL, Ian Gregory. W. B. Saunders Company, Philadelphia, 1961. 577 pages, \$10.00.

As is true in most other fields of medicine, the definitive textbook on psychiatry will probably never be written. The rapid growth of accumulated data, new information and recent discoveries always tend to make any textbook of medicine a few years behind the times. Textbooks, however, definitely have their place as repositories of established factual information or as methods of expressing the opinions and views of a particular writer. As such, it becomes a reference book which should, more or less, summarize the thinking on a particular subject up to the date of publication. In this, Dr. Gregory's book has succeeded quite well.

In the field of psychiatry, so much of our basic concepts are still somewhat speculative, based on certain fundamental assumptions upon which we do not all agree. As Dr. Gregory points out when he draws upon the material of Hollingshead and Redlich, psychiatrists tend to group themselves into two main groups: those with an analytic and psychological orientation and those with a directive and organic orientation. Nominally there is a third group, the truly eclectic group but these are regarded as extremely rare.

Dr. Gregory's book tries, and I think in part succeeds, to be truly eclectic. In this I feel (through my own bias) that he does not completely succeed. His discussions of psychoanalytic material does not present, in my opinion, a very adequate elicitation of the dynamic approach which though founded by Freud has grown and enlarged itself considerably in the last 60 or more years since the founding of psychoanalysis. It is interesting to note that in the particular study which Dr. Gregory has mentioned, all of the analytically and psychologically orientated groups were among the university professors. I am well aware of the fact that merely being a university professor does not bestow infallibility but it might indicate that those who are more interested in sci-

entific theory, in why people do things the way they do, in the scientific aspects of behavior, come from this group. Similarly, the group with the directive and organic orientation comprised all of the state hospital psychiatrists in the particular study referred to, and it might be inferred that those who deal with large masses of patients, many administrative duties and executive decisions, must of necessity be "directive." The particular study referred to, however, does not necessarily give a picture of American psychiatry at large. More and more analytically orientated, dynamic concepts are infiltrating our state hospitals and private sanatoria.

Eclecticism is a very relative term. On the one hand it could mean a bias so strong that an analytically orientated physician has forgotten how to use a prescription pad or on the other hand, it might reduce itself to the absurdity of giving electro-shock treatment to a patient with mother-in-law problems.

I have, of course, quoted above absurd examples but in spite of their absurdity and the common knowledge that the truth lies somewhere in the middle, I am very skeptical that the true eclectic exists. As Hoskins in the "Biology of Schizophrenia" which is given as a reference in Dr. Gregory's chapter on schizophrenias, points out in the preface to his little book, men can be seen as the resultant of processes that take place on an atomic and molecular scale, on a histological or tissue level, on a gross anatomical structure level, on an individual behavioral basis and finally as a psychosocial phenomenon. It is impossible today to be an expert in all these fields. One cannot be fully equipped as a biochemist, geneticist, histologist, anatomist, psychologist and sociologist. One can only draw from these other fields as best he can but he must choose the field of his own major endeavors and interests. I feel Dr. Gregory has gone far in selecting from many fields in his textbook but, again because of my own bias, feel that he has somewhat neglected the psychoanalytical-dynamic approach. For example, there is no really clear cut delineation of the psychosexual de-

(Continued on page 364)

American Medical Association

Report From the 111th Annual Meeting

Following is a report on actions taken by the House of Delegates of the American Medical Association at the annual meeting in Chicago, June 24-28, 1962.

Dr. Edward R. Annis of Miami, Florida, chairman of the AMA National Speakers Bureau and well known spokesman in the campaign against the King-Anderson Bill, was chosen president-elect of the association. Dr. Annis will become president at the June, 1963, annual meeting in Atlantic City, succeeding Dr. George M. Fister of Ogden, Utah, who assumed office at the Tuesday night inaugural ceremony in Chicago.

The AMA 1962 Distinguished Service Award was voted to Dr. Russell L. Cecil, 81, of New York City, senior editor of the *Textbook of Medicine* and one of the nation's leading researchers in the field of arthritis.

Final registration figures at the meeting reached a total of 42,643, including 14,092 physicians.

Health Care for the Aged

The House received 17 resolutions expressing full support of the Kerr-Mills program and firm opposition to the King-Anderson type of legislation. In reaffirming the position of active opposition to the King-Anderson Bill, the House cited the following reasons: "(1) the lack of need for such a plan; (2) that it would provide inadequate care for all aged rather than complete care for those who need help; (3) the fact that inherent in the use of the Social Security mechanism are governmental controls of medical practice which would increase with the expansion of the program; (4) deterioration of the quality of medical care not only for the aged but for the population as a whole."

In reaffirming strong support for the Kerr-Mills Act, the House declared that "the Kerr-Mills method should be given a fair and reasonable chance to meet the need and thus remove the demand for further Federal legislation."

It urged that in states where existing programs indicate a need for a Kerr-Mills implementing law, each state association should actively sponsor and promote with other responsible citizens the enactment of such a law. It also urged the state associations to "work actively with other responsible citizens in reviewing the functions of the law, evaluating its effectiveness and aggressively supporting improvements in programs to aid those aged who need help

so as to achieve the provision of quality medical care and service."

The House took no action on one resolution which called for non-participation in the implementation of the King-Anderson Bill, but it urged individual physicians to give particular consideration to the Principles of Medical Ethics.

Medical Discipline

To implement one of the major recommendations made by the Medical Disciplinary Committee at the June, 1961, meeting in New York, the House approved a change in the Bylaws under which a proposed Section 1 (B) of Chapter IV will now read:

"In addition to such disciplinary action as may be taken under the constitution and bylaws of the component society and constituent association to which the Member belongs, or when a state medical association to which a Member belongs requests the AMA to take disciplinary action, or when at the request of the American Medical Association the state association to which the member belongs consents to disciplinary proceedings by AMA, the Judicial Council, after due notice and hearing, may censure him, or may suspend or expel any member of the American Medical Association from AMA membership only for an infraction of the Constitution or these Bylaws or for a violation of the Principles of Medical Ethics."

AMA Board of Trustees

The House approved a report of the Ad Hoc Committee on the Board of Trustees which recommended that the size of the Board be increased from 11 members to 15 members. This will be accomplished by adding three elected members and by including the immediate past president of the Association for a one-year term. The House also accepted a committee recommendation that set the term of office for elected Board members at three years and limited the number of terms to three, for a maximum total of nine years service.

American Board of Abdominal Surgery

A study report from the Council on Medical Education and Hospitals, recommending that recognition should not be granted to the American Board of Abdominal Surgery as a specialty board, was approved by the House. In accepting the Council report, the House also declared its disapproval in prin-

ciple of establishing specialties which are based largely or wholly on an arbitrarily defined anatomical region of the body.

American College of Surgeons

In considering a Board report and four resolutions involving surgical assistants and relations between the AMA and the American College of Surgeons, the House restated the Association's June, 1961, policy statement in the following manner: "(1) Each member of the AMA is expected to observe the Principles of Medical Ethics in every aspect of his professional practice. (2) Each doctor engaged in the care of the patient is entitled to compensation commensurate with the value of the services he has personally rendered. (3) No doctor should bill or be paid for a service which he does not perform; mere referral does not constitute a professional service for which a professional charge should be made or for which a fee may be ethically paid or received. (4) When services are rendered by more than one physician, each physician should submit his own bill to the patient and be compensated separately whenever possible. (5) It is ethically permissible in certain circumstances, however, for a surgeon to engage other physicians to assist him in the performance of a surgical procedure and to pay a reasonable amount for such assistance. This principle applies whether or not an assisting physician is the referring doctor."

Voluntary Health Insurance

In accepting a Council on Medical Service report on the utilization of state and federal tax funds to provide voluntary prepayment health insurance protection to assist the aged in meeting the costs of health care services, the House approved the following policy statement: "(1) The need for application of the prepayment or insurance principle to protect our people against the costs of medical care is fully recognized and applies to all ages rather than to the aged alone. (2) Persons financially able to prepay their own expenses are expected to do so and must be encouraged rather than compelled to do so. (3) Persons financially unable to prepay adequately their expenses may properly be assisted to the degree necessary by their families, their communities, their states, and if these fail, by the Federal Government—but only in conjunction with other levels of government. (4) The prepayment system should be devoid of governmental controls. (5) Dignity and self-sufficiency for the individual should be upheld. (6) The protection offered must be reasonably comprehensive rather than token in character."

Miscellaneous Actions

In considering reports and resolutions on a wide variety of subjects, the House also:

Learned that the Board of Trustees has instructed the Council on Drugs to conduct a study on the relationship between *tobacco and disease*.

Disapproved a suggestion that the Council on Medical Education and hospitals be replaced by *two separate councils* on undergraduate and graduate medical education.

Referred to the Board of Trustees a proposal that at least six members of the *Council on Medical Education and Hospitals* shall be engaged primarily in the private practice of medicine in hospitals without a medical school affiliation and that no more than four members may be salaried personnel of a medical school or university.

Approved a resolution that *honorariums* be provided for the Association's elected officers in amounts to be determined by the Board of Trustees.

Adopted an AMA Statement of Principles on *Mental Health* and urged all constituent associations to lend active support to the First National Congress for Mental Illness and Health, to be held in Chicago in October.

Endorsed a resolution on *employment of the handicapped*, stating that each individual candidate for employment should be evaluated in light of his ability to perform useful work.

Approved a Guide to the Organization and Operation of *Airport Medical Services* submitted by the Council on Occupational Health.

Endorsed the joint statement on *narcotic addiction* by the AMA and the National Research Council of the National Academy of Sciences.

Urged automobile manufacturers to make *seat belts*, approved by the Society of Automotive Engineers, standard equipment on all automobiles.

Approved a recommendation that *AMA meetings* be scheduled as follows: Annual Meetings—1966, Chicago; 1967, Atlantic City, and 1968, San Francisco, and Clinical Meetings—1965, Philadelphia, and 1966, Las Vegas.

Recommended that the Council on Medical Education and Hospitals conduct a study of *specialty residences*.

Reaffirmed its opposition to *compulsory coverage of physicians* under the Social Security Act, after receiving 11 resolutions opposing coverage and only two favoring the inclusion of physicians.

Inaugural Ceremony

Dr. Fister, in his inaugural address, declared that "we will cooperate, to our very utmost, with government officials, legislators and all Americans who are sincerely interested in finding sound, practical solutions to medical care problems—solutions which include both a respect for medical standards and a respect for the taxpayers." The Distinguished Service

Award was presented to Dr. Cecil, and Donald D. Van Slyke, Ph.D., research chemist at the Brookhaven National Laboratories, received the first AMA Scientific Achievement Award honoring outstanding contributions to medicine by non-physician scientists. Mrs. George Papanicolaou was given a special award honoring her late husband's service to mankind.

Election of Officers

In addition to Dr. Annis, the new president-elect, the following officers were named at the closing session on Thursday:

Dr. J. P. Culpepper, Jr., Hattiesburg, Miss., vice president; Dr. Norman A. Welch, Boston, re-elected speaker of the House, and Dr. Milford O. Rouse, Dallas, Tex., re-elected vice speaker.

Dr. Charles L. Hudson, Cleveland, Ohio, and Dr. Wesley W. Hall, Reno, Nev., were re-elected to five-year terms on the Board of Trustees. Dr. Elmer G. Shelley, North East, Pa., was renamed to the Judicial Council.

Re-elected to the Council on Medical Education and Hospitals were Dr. Warde B. Allan, Baltimore, and Dr. W. Clarke Wescoe, Lawrence, Kansas.

Dr. George W. Slagle, Battle Creek, Mich., was elected to the Council on Medical Service, succeeding Dr. Robert L. Novy, Detroit, who was ineligible for re-election.

For the Council on Constitution and Bylaws, Dr. Walter E. Bornemeier, Chicago, was re-elected, and Dr. James Monroe Kolb, Sr., Clarksville, Ark., was named to fill the unexpired term of the late Dr. Walter E. Vest, Huntington, W. Va.

L. R. PYLE, M.D.

G. F. GSELL, M.D.

Delegates from Kansas

Screening Programs

(Continued from page 357)

uniform tuberculosis screening, Dr. Myers said the American School Health Association will distribute the results of its survey in compendium form to school heads in each state including Puerto Rico and the District of Columbia.

To encourage regular tuberculin testing under the program, the Association awards a Class A certificate to schools which test at least 95 per cent of their children and 100 per cent of adult school personnel at regular intervals. Children who react to the tuberculin test indicate a previous exposure to the germs of tuberculosis. These reactors are given immediate chest x-ray examination and treatment if required. A search

is made promptly among associates and family contacts of reactor children to find others who may have contagious tuberculosis.

Dr. Myers added, "In 1960 there were 20,000,000 children under the age of five years (11.1 per cent of the population) in this country. There were 50,000,000 from five to 19 years (27.7 per cent of our total population). All of these 70,000,000 (38.8 per cent of our population) need to be tested with tuberculin. This includes almost 50,000,000 from kindergarten through the 12th grade. As the number of reactors decreases, the more tuberculin testing must be done, as all non-reactors must be retested every two years in order for their schools to retain certificates."

He concluded that the benefits of tuberculin testing must be extended to every school child and teacher in the country, to insure the elimination of the tubercle bacillus within the next generation.

Book Reviews

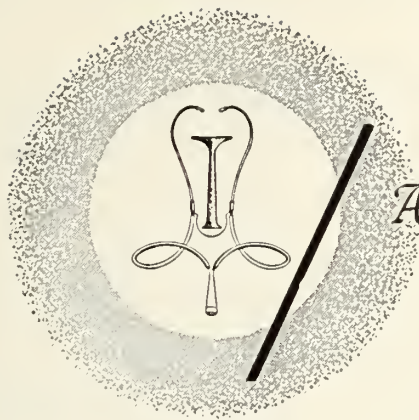
(Continued from page 361)

velopment and reference is made to it so briefly that no student could get an adequate understanding of it from this text alone. Yet it is undeniable that the theory and concept of psychosexual development has been more helpful in explaining why people really do things, why they think the way they do, why they hallucinate the way they do, why they act the way they do that it is a pity in my mind to so briefly touch upon it.

Dr. Karl Menninger's holistic approach to the concept of mental illness is briefly referred to and more briefly dispensed with. I can remember how startled I was when Dr. Karl suggested that general paresis was not caused by *Treponema pallidum*. I had never before considered the fact that a spirochete cannot *make* a man hallucinate. It is easy to forget that what we say or do or think or feel is the result of our *intrapsychic* processes even though it may be *accompanied* by the most devastating organic changes.

For these reasons, I feel that Dr. Gregory's exposition of the mental mechanisms or defense mechanisms leaves us with purely a description of them as phenomena but leaves them inexplicable unless we introduce psychoanalytic dynamics.

Studies have shown that it is far more easy to criticize than to construct. In this review, I have taken the easy way out and been more critical than constructive. I, therefore, want to make plain that I consider the book a valuable addition to my library, a scholarly and well written text, written by a skeptical and broad-minded author.—J.A.G.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

The 47th annual Scientific Assembly of Interstate Postgraduate Medical Association, to be held at the Palmer House, Chicago, October 1-4, offers 20½ hours of varied teaching (and A.A.G.P. Category II credit) for a registration fee of \$10. The program is especially suited to the needs of generalists, as all lectures, panels and clinics are closely related to medical problems familiar to the physician who does not devote his time to a single specialty. Panels on "Arthritis," "Diabetes," "Tranquilizers and Energizers," the "Medical and Surgical Treatment of Duodenal Ulcers," and "Newer Treatment of Hypertension" are important parts of the three and one-half day program.

Interstate is not a "membership organization," but offers an annual teaching program for practitioners interested in a varied review of new developments in the major branches of medicine. The 1962 Assembly program offers educational exposure to more than 90 prominent medical educators, as teachers.

Those interested in full details of the program are urged to write for a brochure, by addressing a postal to N. A. Hill, M.D., Secretary, Interstate Postgraduate Medical Association, Box 1109, Madison 1, Wisconsin.

The Kansas City Southwest Clinical Society will hold its 40th annual fall clinical conference at the Hotel Muehlebach, Kansas City, Missouri, October 1-3. This course is acceptable for Category I, postgraduate study credit by the American Academy of General Practice.

For complete information write the Kansas City Southwest Clinical Society, 3036 Gillham Road, Kansas City 8, Missouri.

The 1962 Scientific Session of the American Cancer Society will be at the Biltmore Hotel, New York City, October 22-23.

This meeting will celebrate Cancer Progress Year, 1962 being the 25th anniversary of the National Cancer Institute. It will have as its theme "The Clinical Impact of a Quarter Century of Cancer Research." Papers will be presented by leading American scientists on the Causation of Cancer, The Biological Aspects of Cancer, Detection and Diagnosis of Cancer, and Therapy of Cancer. All papers will attempt to emphasize the research developments which have clinical application today.

Write the Director of Professional Education, American Cancer Society, 521 West 57th Street, New York 19, New York, for further information.

The Annual Clinical Congress of the American College of Surgeons will be October 15-19 in Atlantic City, New Jersey. For further information write to Dr. William E. Adams, Secretary, American College of Surgeons, 40 East Erie Street, Chicago 11, Illinois.

The annual meeting of District VII of The American College of Obstetricians and Gynecologists will be held at the Hotel Marion in Little Rock, Arkansas, on Friday and Saturday, September 21-22, 1962.

Banquet speaker for the meeting will be The Honorable Wilbur Mills, chairman of the House Ways and Means Committee. Program chairman is Dan W. Beacham, M.D., of New Orleans, La. Local arrangements chairman for the meeting is John B. Nettles, M.D., of Little Rock. The meeting is open to all physicians interested in the practice of obstetrics and gynecology. Further information may be obtained from the district secretary, Dan W. Beacham, M.D., 4240 Magnolia St. at General Pershing, New Orleans, La.

The physicians' meeting will be immediately pre-

ceded by a Conference on Obstetric, Gynecologic, and Neonatal Nursing at the Lafayette Hotel in Little Rock, September 19-21. The Conference on Nursing is sponsored by District VII of The American College of Obstetricians and Gynecologists. Further information may be obtained from Dr. Beacham.

The University of Illinois College of Medicine Department of Otolaryngology will offer an intensive postgraduate basic and clinical program under the direction of Doctor Emanuel M. Skolnik. This Assembly for practicing otolaryngologists will be held October 20-26 and offers a condensed program of one week of daytime and evening sessions. It is designed to bring to specialists a wide variety of current advances in management, therapy and philosophies. Review of basic morphologic features under the direction of Doctor Maurice F. Snitman and Doctor Frederic J. Pollock is also included, and will feature laboratory demonstrations and prosection, all augmented by visual aids.

Panel sessions have been designed to bring out special features of otologic and reconstructive surgery and tumors of the head and neck. Luncheon chats are an important part of the daily instructional program.

Interested physicians should direct communications to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

The Midwest Interprofessional Conference will be held at Iowa State University, Ames, Iowa, on September 17 and 18, 1962. This conference was formed several years ago to aid members of the various professions to keep abreast of research on diseases common to animals and man. Papers will be presented in the areas of the leukemia complex, toxoplasmosis, salmonellosis, trichinosis and aging and vascular change.

The following schedule of postgraduate courses is announced for the 1962-63 school year by the Department of Postgraduate Medical Education, University of Kansas School of Medicine:

FOR MEDICAL PROFESSION

SYMPOSIA

1962

Sept. 14	INFECTIOUS DISEASES
Oct. 25	SCHOOL HEALTH
Nov. 5-7	OBSTETRICS
Nov. 7 & 8	A. MORRIS GINSBERG MEMORIAL SEMINAR: Renal Disease

Nov. 12-15	INTERNAL MEDICINE
Dec. 13 & 14	THE EYE IN PHYSICAL DIAGNOSIS

1963

Feb. 11-15	Medical-Surgical CLINICAL SYMPOSIA:
Feb. 11	Endocrinology
Feb. 12	Medical Problems in Surgical Patients
Feb. 13	Psychiatry
Feb. 14	Gastroenterology
Feb. 15	Pulmonary Disease
Feb. 18-20	RADIOLOGY AND RADIOACTIVE ISOTOPES
Mar. 11-13	PEDIATRICS
Mar. 18 & 19	CARDIAC AUSCULTATION
Apr. 8-10	OTORHINOLARYNGOLOGY
Apr. 10-12	OPHTHALMOLOGY
Apr. 22-24	ANESTHESIOLOGY
May 20-23	SURGERY

INTERMITTENT COURSES

Sept. 18-May 21	GENERAL MEDICINE & SURGERY—St. Joseph, Mo. (nine evening sessions, third Tuesday of each month)
Nov. 20-Apr. 16	GENERAL MEDICINE & SURGERY—Chanute, Kans. (six evening sessions, third Tuesday of each month)
Dec. 4-May 10	KANSAS CIRCUIT COURSE—(six afternoon and evening sessions, one day each month at eight centers in Kansas)

CORRESPONDENCE COURSES

Sept. 28-May 31 and Feb. 8-Oct. 11	INTERPRETATION OF ELECTROCARDIOGRAMS—(thirty six weekly lessons)
Oct. 10-June 12 and Feb. 20-Oct. 16	HEMATOLOGY—Basic Course (nine monthly lessons)
Sept. 17-May 20 and Dec. 31-Aug. 26	HEMATOLOGY—Advanced Course (nine monthly lessons)

SPECIAL TECHNIQS COURSES

Oct. 7-Dec. 9	RADIOLOGICAL PHYSICS—(ten two-hour sessions weekly on Sunday)
June 3-15	HISTOCHEMISTRY

Mental health is the ability to love and to work. The people who have taught us the most about love are babies. Adults are deteriorated babies.—*Dr. Ashley Montagu*

Fight Against Drug Addiction

A major effort to eliminate drug addiction as a national problem has been announced by leaders of the National Association for the Prevention of Addiction to Narcotics (NAPAN).

The program consists of activities and projects in two principal areas—public education and scientific research. The projects were developed by the organization during the past year—a year that has seen a growing national concern with the harmful effects of narcotic addiction on both its victims and the communities in which they live.

Formulation of the projects was only recently completed by the Steering Committees of the Medical Advisory Board and National Advisory Board of NAPAN, and the projects were officially approved by the two boards on March 31, 1962, at a special joint meeting.

Following are the projects to be sponsored by NAPAN:

In the Field of Public Education

1. Preparation of pamphlets and other educational materials addressed specifically to teen-agers, pamphlets and brochures for adults, production of documentary films, establishment of a speakers' bureau.

2. A major educational program involving co-operation with public and private agencies, support of local voluntary groups attempting to cope with the narcotic addiction problem, and efforts to engender greater concern by government agencies at all levels with the problems involved in drug addiction.

3. Establishment and support of a national clearing house and library to collect and disseminate authoritative information on all aspects of drug addiction.

4. Publication of a newsletter for professional persons involved with the drug addiction problem (physicians, public health officials, psychiatric social workers, etc.) and key lay persons, such as editors, ministers, and business and labor leaders.

5. Sponsorship of an International Congress on Drug Addiction, at which information on all aspects of narcotic addiction would be presented by experts from all over the world.

In the Field of Scientific Research

1. Sponsorship of five-year fellowships or investigatorships for work on drug addiction at established

medical centers, hospitals for addicts and other recognized institutions.

2. Research projects on the physiological, biochemical and pharmacological aspects of narcotic addiction. These will include studies of the physiological basis of drug addiction, variations in addiction liability and mechanisms for tolerance. They will also encompass a search for narcotic antagonists and narcotic substitutes.

3. Clinical research and development of institutional, post-institutional and non-institutional programs. These will be devoted primarily to exploration of new methods of treatment and rehabilitation, since the traditional techniques have proven to be of little value.

4. Epidemiological, socio-anthropological and psychiatric studies.

5. Research into the social, moral and legal validity of the current approach to the problem of drug addiction in the United States.

CURRENT AMA FILM CATALOG NOW AVAILABLE

The 1962 edition of the AMA Medical Health Film Library catalog is now available for distribution by the Medical Motion Pictures and Television Section of the Department of Scientific Assembly. This expanded catalog contains information about 173 films for professional audiences and 82 films to be used by physicians in addressing lay groups such as PTA, church organizations, service clubs, etc. A description of the content of each film, running time, service charges, and instructions for ordering are included in this catalog.

The services of the AMA film library are available to physicians, medical societies, hospitals, medical schools and other medical groups. Copies may be obtained, without charge, by addressing your request to the American Medical Association, Medical Motion Pictures and Television Section, Department of Scientific Assembly, 535 North Dearborn Street, Chicago 10, Illinois.

Sound conditioning began 30 years ago in churches, theatres, and auditoriums. Nowadays, all modern buildings are planned with sound conditioning.

KANSAS STATE BOARD OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in May 1962 and 1961

And Cumulative Totals for the First Five Months of 1962 and 1961

Disease	May			January to May Inclusive		
	1962	1961	5-Year Median 1957-1961	1962	1961	5-Year Median 1957-1961
Amebiasis	4	4	—	27	20	20
Aseptic meningitis	—	—	*	4	—	*
Brucellosis	4	1	2	13	14	26
Cancer	310	336	393	1,463	1,751	2,110
Diphtheria	—	—	—	—	—	—
Encephalitis, infectious	—	2	2	6	11	11
Gonorrhea	226	177	177	907	1,087	875
Hepatitis, infectious	26	83	22	285	412	155
Meningococcal, meningitis	1	2	2	8	11	9
Pertussis	10	3	3	16	17	30
Poliomyelitis	—	—	—	—	—	1
Rheumatic fever	1	2	—	7	4	3
Salmonellosis	2	3	*	20	16	*
Scarlet fever	35	98	74	396	839	447
Shigellosis	1	9	1	8	59	13
Streptococcal infections	92	110	73	823	802	156
Syphilis	100	98	114	494	548	561
Tinea capitis	2	16	12	69	64	118
Tuberculosis	14	28	25	114	137	151
Tularemia	1	1	3	6	6	12
Typhoid fever	—	—	—	2	2	3

* Statistics on 5-Year Median not available.

ORAL POLIO VACCINE RECOMMENDATIONS OF THE STATE BOARD OF HEALTH

1. The State Board of Health endorses the recommendations of the Kansas Polio Advisory Committee and the U. S. Public Health Service.

2. It is recommended that primary emphasis be given to administering oral polio vaccine through mass immunization programs on a community-wide basis.

3. The State Board of Health does not anticipate the purchase of oral polio vaccine for general distribution in Kansas. It is recommended that local immunization programs be financed by such means as follows:

A. Charging a nominal fee to cover the cost of the vaccine and other necessary clinic expenditures;

B. Solicit volunteer contributions from the participants; or

C. At the expense of local service organizations and civic groups.



JAMES E. BRESSETTE, M.D.

James E. Bresette, 40, Kansas City ophthalmologist, died July 2 at Providence hospital. A graduate of Ward high school in Kansas City, Dr. Bresette took premedical courses at the University of Notre Dame and received his medical degree from Northwestern University in 1946. He began his practice in Kansas City in January, 1948.

Mrs. Bresette, a son and four daughters survive Dr. Bresette.

THEODORE S. GAGE, M.D.

Theodore S. Gage, 57, Overland Park, died at his home on June 26. Dr. Gage was born in Chicago and graduated from Stritch School of Medicine of Loyola University, Chicago, in 1929. He had served on the staffs of Bethany and Providence hospitals and recently was on the staff of Shawnee Mission hospital.

He is survived by his wife, Mrs. Sally Gage.

MARION F. RUSSELL, JR., M.D.

Marion F. Russell, Jr., 38, Great Bend, died June 24 at St. Rose hospital.

Dr. Russell, a fellow in surgery of the Mayo Foundation from July, 1956, and a fellow in pediatrics from April, 1957 to April, 1959, was born in Great Bend on June 30, 1924. He returned there to enter private practice in 1959. He attended Northwestern University in 1942 and 1943, and served in the Navy from 1944 to 1946. In 1947 he enrolled in the University of Nebraska and later entered the University of Kansas where he received his medical degree in 1955.

Dr. Russell is survived by his wife, Aimee, and four children.

LOUIS K. ZIMMER, M.D.

Louis K. Zimmer, 61, a Lawrence physician for 32 years, died June 24 at Lawrence Memorial hospital.

Dr. Zimmer was born in Wheeling, West Virginia, in 1900. He graduated in 1925 from Western Reserve University School of Medicine, Cleveland, Ohio, and began his practice in Lawrence in 1930.

He is survived by his wife, Mrs. Stella Zimmer.

The Kansas Medical Society—1962-1963

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Wyandotte.....	C. L. Francisco, Kansas City	C. L. Young, Kansas City



Mirror or Mirage

Some Lay Criticisms of the Medical Profession and Its Practice, and Suggestions for Improving Its Public Image

OLAF S. SOWARD, Topeka

WHEN YOU PEER into the mirror in the morning to check up on what kind of a job the razor did this time—or, in the case of the distaff side, to perfect the application of your choice in labial curvatures—you are attempting to make sure that the completed result will look the same to the objective observer as it does to you. But it is a truism of optics that if there happens to be a flaw in the glass or its mercury backing the impression you are going to get will be anything but reliable!

You are in something of that same position as regards your present assessment of what professional life is going to be like when you get that coveted diploma and license, and the internship has become a matter of history. But, the crystal ball in which you are optimistically viewing a roseate future has the grim possibility of harboring more distortion-producing flaws than the cheapest cast-off dime store mirror you could ever find in a junk shop.

The life of the student of any seriously demanding intellectual discipline is always infinitely more cloistered than he realizes. The sharp cleavage between town and gown goes back to the earliest middle ages. And, while today it seldom erupts into rioting or other physical controversy it is perhaps even more accentuated in its subtler aspects than it was 500 years ago.

More especially is this true of an intellectual discipline so utterly voracious of every ounce of the con-

This is a talk given by Mr. Olaf Soward, who until his retirement from active journalism on July 15, was for 40 years associated with Stauffer Publications and most recently WIBW and WIBW-TV, Topeka, to the junior and senior classes at KUMC on Kansas Medical Day. In it he relates some of the "less favorable" attitudes laymen have toward the medical profession—opinions which are not those of Mr. Soward. You will not agree with all; you may doubt that some of them are opinions of a significant number of your patients; but it is something about which you and I—all of us—can well afford to do some thinking. It should stimulate interest in building good will for the profession.

—Editor

centrated attention of its devotees as the expanding maze of bio-chemical mysteries which constitute ultra-modern medicine. To an astonishingly considerable degree this is equally true of the physician in active practice despite the civic duties thrust upon him.

The highly specialized vocabulary and the necessarily intense constriction of areas of interest effec-

tively wall off any broad or deep understanding between either the finished doctor or the medical student and the rest of the world—except for an insignificant fringe of vocationally curious laymen, such as competent and conscientious journalists.

In the main, the average man—including the average *successful* man in business, finance or industry—simply doesn't have the slightest idea about what you mean when you talk among yourselves. And, even more ominous from its potential impact upon your professional prospects—he doesn't even make any pretense of giving a continental damn!

More than any other factor, the one thing which has strapped the enervating straightjacket of socialized medicine around your frustrated professional counterparts in England today, was the fact that one highly vocal and insidiously persuasive demagogue—the late Aneurin Bevan—personally hated doctors with a blind and unreasoning umbrage.

Result: Within half a generation your British fellows have found themselves dispossessed of their proud, age old position of honored, independent and respected professional leadership to become, on the whole, mere scientific flunkies—overworked and badgered without recourse by administrators who are mere political hacks, and frequently without enough medical knowledge adequately to treat a sick cat.

From the always present possibility of earning by their individual professional skill an expanding practice and a financial competence for their mature years, they are reduced to the status of merely salaried functionaries of an indifferent political regime. And make no mistake about it, the salaries grudgingly allowed by the politicians are grossly inadequate for what they are supposed to know. The constant stream of the more capable and professional British doctors—estimated at more than 500 per year—who leave not-so-merrie England to practice in Australia, New Zealand, Canada or the United States, proves the point beyond cavil.

And it all came about because the bridge of natural and easy mutual understanding between the commonalty of the people and the doctors fell into an impassable state of disrepair—a bridge which is always kept open between the bricklayer and the grocer, the office clerk and the clothing merchant, the railroad brakeman and the proprietor of the corner pub.

We in America have never had the same frozen class system—which amounted almost to a caste cleavage—that exacerbated in England the resentments flowing from an abysmal ignorance of the vast fundamental changes which have taken place in the scope and methodology of medical science within the past half century—and which made it easy for self-

seeking politicians to administer an overdose of intellectual anaesthetic to the British voter.

But, we *do* have resentments—active, stupid, explosive and stubborn resentments—in this country which show to the eye of the trained observer a snowballing tendency to become more acute by the year. Your predecessors into the ivory towers of professional practice are becoming uneasily aware of the miasmatic aura in the public atmosphere surrounding them. It is not beyond the range of possibility that *you* could find that atmosphere poisoned to the point of suffocation within a decade.

And the real tragedy of it all is that even the most active and gregarious among the practitioners who preceded you among these or similar halls of learning seldom have any opportunity to come into real contact with more than the peripheral superficialities of the problem. The people who do the complaining vent 99 per cent of their spleen behind the doctor's back.

It is practically a guaranteed certainty that not one of you in ten will ever have a chance to hear these strictures in their unedited ferocity, unless you were to happen to drop in anonymously while out driving in your oldest clothes at a barber shop or a truck drivers' eating joint—and the generalized conversation just happened to turn spontaneously to an informal forum on the rank layman's attitude toward doctors. And that is a conjunction of coincidences which stands about one chance in a hundred thousand of actually being fulfilled in any individual physician's experience!

It is a fact of the vocational requirements of the life of a news man—be his medium that of the printing press, the microphone or the television camera—that he rubs elbows constantly with all kinds of people, from plumbers to patricians. He learns to keep his mouth shut and his ears wide open. Since it is highly doubtful if the bulk of you will ever have your education really rounded out on your own anent the perverse psychology of the medically unlettered citizen—for this segment of your future patients is going to bend over backward, practically in a 180 degree arc, to keep you from knowing what they actually think, for fear of antagonizing you against an hour of need—permit me to give you the benefit vicariously of some of the standard gripes I have heard over the past decade.

It must be specifically understood that I am not the author of any of them—and agree with them only in part and with most emphatic reservations. It must also be admitted that you *are* going to have intelligent, cooperative and completely sympathetic patients—lots of them. But, you are also going to have so many of the other kind that you would do well to prepare yourselves in advance for the shock.

First and foremost they are going to grumble about your fees. They see the successful doctor's family driving two or three cars, living in one of the best houses in town and dressing like the latest fashion plates from the Rue de la Paix in Paris or Saville Row in London. They see the physician and his family belonging to the most exclusive and expensive clubs and moving in social circles to which the average man's wife or daughter would not even dream of aspiring. They hear accounts, frequently quite factual, of doctors' incomes in the \$25,000 per year bracket or better—while they are trying to raise a family on possibly four to five thousand dollars.

And they figure that that ostentatious luxury is being wrung out of their pinched penury in a period of desperate need, when they have no recourse except to submit to anything and everything which they hope may save their life or restore their health—or that of some loved one. They don't like it. And, with the customary illogicity of people who think with their emotions and not with their cerebral apparatus—they conclude it is manifestly unfair and unjust.

Of course, any skilled bricklayer would be outraged if you suggested that he ought to work like a Turk for the same wage as a ditch digger. But, by some strange quirk of habit, ordinary mortals have always assumed that members of the learned professions should be animated by infinitely higher ethical standards than those by which they are willing to guide their own life.

Nor do they have the faintest real conception of what it costs to become and to be a doctor. Few of them know anything about the twelve to fifteen years of scholastic and bedside instruction you must undergo. They don't know what it costs to pay technicians nor to maintain laboratory and radiological services. They don't care. When they are sick or hurt they figure somebody should make them well and whole at a cost which bears some relationship to their own earning capacity.

Blue Cross and Blue Shield and similar insurance programs are slowly taking some of the poison out of that one. But, since it springs primarily from age-old envy, the speed of the progress is hardly startling. The medical profession itself is partly culpable in the matter of this sullen complaint; there has never been made a concerted and consistent effort to get the less intelligent elements of the public to understand what it costs the doctor to provide the kind of medical service the most naive patient expects these days.

The growing propensity to discontinue house calls is also a source of irritation to many patients, particularly mothers of young children. It is more difficult to justify than today's scale of fees. To those mothers it seems decidedly unreasonable that they

should have to take the time to get possibly three or four youngsters all cleaned up and herded down to a doctor's office, just to save the physician the time it would take him to drive out to her house either before or after office hours. Not only that, but they question the medical wisdom of exposing a possibly already sick child to the additional strains of bacteria which may be lurking amid the coughs and the clothing of a miscellaneously crowded waiting room.

I am not unaware that the standard professional defense of this rather recently emerged tendency is that all the doctor's equipment for the finer practice of his art is at his office. But, even the least alert patient is going to be dimly aware that in probably nine cases out of ten all he will have to do is to make a diagnosis of a condition whose gross manifestations leap to his trained eye almost automatically.

Even more bitter is the mounting resentment at the lengthening roster of physicians who refuse to make night calls. Your patients seldom select the time of day at which they are going to become ill. As one friend of mine once remarked, with assorted profane trimmings, when he had been refused attention at night by a physician who lived in his own block: "He asked to become a doctor. Nobody made him!"

Particularly do I recall one case recounted to me by a young relative who for some years practiced here in Johnson County. A mother with three children caught one of them flushed and running a high temperature when she made a late bed check. Respiration was shallow and apparently difficult. She phoned her regular pediatrician in KCK and asked him to come right out. He brusquely told her to give the child half an aspirin and he would see it the next morning.

She pleaded that this bore every evidence of being a major emergency, but her doctor cut her off short with the comment that he had to get some sleep. She called a half dozen other pediatricians in both Kansas Citys and drew a blunt refusal every time.

Finally, in desperation, she called this general practitioner relative of mine and begged him to please come and just look at the child. So, shortly before midnight he arrived at her house—and stayed there until past daylight.

He told me that youngster could quite easily have *died* before morning if professional help had not been available. Naturally that woman was always almost pathetically grateful to him as an individual. But what do you suppose that incident must have done to her life-long opinion of the medical profession—as a profession?

There are frequent and acidulous complaints about the length of time it takes to get to see a doctor. Sitting in a crowded, and frequently inadequate, waiting room for 45 minutes to an hour can hardly be listed as among the better public relations devices.

Except in the smaller, one-doctor, towns it ought to be completely unnecessary. Yet, it is an extremely common experience.

Sometimes I understand it comes about because some physicians just can't stand it to see the possibility of an extra fee slipping through their fingers. In one circumstance I am told it is contrived deliberately, because the doctor imagines it will heighten his prestige around town. In any case it is bad, because anything is bad which needlessly makes even one patient resentful.

A fairly considerable part of the complaints you might hear, but probably won't, stem from the indisputable fact that a good many of the patients who will appeal to you are incredibly and irremediably stupid. But there is nothing you can do about it—except to try your level best to save them from the results of their own folly—for they are stupid about everything, not just their health and its professional custodians.

Such are the patients who have always boasted that they have never been near a doctor for twenty years—and then, when they are driven into the physician's office by some acute development of a chronic condition which has been building up for a decade—are firmly convinced the doctor is gypping them if he doesn't restore them to the soundness of an old fashioned dollar and the bounding vigor of a young colt, all within a week or ten days.

Or it is a patient who has carelessly read a vague—and quite possibly exaggerated—headline about some new miracle drug which it is hoped *might* offer a cure for let's say—crippling arthritis, *if* it stands up after several more years of laboratory and field testing; and who is mulishly convinced that the doctor is holding out on him if he doesn't have that drug in his office by Saturday.

Of course they are stupid. But they are people; and it is people you are going to have to deal with. Also it is people who vote. Nobody asks them at the polling place if their IQ is that of an adult—or a 10 year old.

However, one of the more insidious complaints one hears with increasing frequency—and this one is likely to come from a higher grade of patient than the average—is that too many doctors have ceased to be interested in human beings *as* human beings. At the best, declares this particular school of dissidents, the physician is likely to look on them from the impersonal aloofness of an entomologist pondering a moth impaled on a pin. And that is devastating to the ego of the average man—who has very little in life to which to hold except the more or less trivial ego in which he has clothed his soul.

At the worst, of course, they regard themselves as viewed in the light only of a source of potential in-

come. Which is worse than devastating; it is infuriating.

You are also going to be damned incontinently behind your back by the lunatic fringe of your patients—and at times you are going to be astounded at how deeply that fringe can extend into the fabric of humanity—for things with which you have nothing whatsoever to do. Even though they know that they pay their hospital bills separately from yours, a lot of them are going to hold you in some undefined way responsible for spiralling hospital expenses, and murmur darkly that you probably get a commission from the hospital for each patient you send there.

It is fairly *common* to hear it said quite positively that one reason medicines cost so much is that the prescribing physician gets a cut from the pharmacist every time it is filled.

Those are some of the things your best friends won't tell you—but which some who are *not* such good friends will go on reiterating beyond your earshot until the proverbial cows come home. Where they are not the products of ignorant prejudice or malevolent envy, they are the result of unfortunate experiences with some less than conscientious or less than diplomatic individual physician. But the damage, in the form of sullen suspicion and ill will, is showered indiscriminately over the entire profession.

"Now," you ask me, "what can we do about it when we get into the maelstrom of practice?"

Well, come to think of it—nobody *did* ask me. But I can well recall at least five occasions over the past 50 years when good physician friends of mine, who had probably never been inside a newspaper office or a radio or TV studio, told me in great detail everything that was wrong with the news handling of each of those media—and precisely how to correct it overnight. And this is my first opportunity to reciprocate.

Perhaps you will grant *that* as a license to me—a rank outsider—to offer some suggestions about how you can preserve some public good will for yourselves individually and for the noble profession of which you will be a part. Indeed, maybe I had better have said "build" some good will. For I know of no major occupational entity in modern America which suffers from such completely miserable public relations as does medicine—unless it is your brother profession of the law or Jimmy Hoffa's teamsters union.

And, those words "good will" are not just a fancy phrase dreamed up by public relations counsel to justify their existence—and their fees. Good will is the very life blood of steady, dependable and permanently profitable careers, corporate or individual. You will find it carried on the books of some of our

relatively small corporations as an asset worth millions of dollars.

If that is true about companies which sell tangible products in which the buyer can take a physical pride, such as motor cars, television sets or men's clothing—with what infinitely greater emphasis is it also true of an imponderable; a professional health service which most of us refuse to buy until we feel terrible anyway, when everything tends to look gloomy and questionable at the best.

So, how does the individual practitioner contribute to the generation of this priceless asset for himself and for his fellow Aesculapians?

Obviously, the first thing he does is to make himself the most conscientiously competent master of the science and art of medicine that his native intellectual equipment and the unlimited application thereof will permit him to become.

But that is only the beginning. That is only the groundwork for the creation of respect and confidence—not the realization of an *edifice* of loyalty and good will. It is at this point that the fledgling physician should write on his brain with letters of fire that he is dealing with sensitive, egocentric and sometimes appallingly obtuse people—not with laboratory problems in pathology and therapy.

Here he would do well to lift a page out of medical history and take to heart the techniques of the idealized physician of 75 years ago. Your professional great grandfathers may not have been such great shakes as exponents of deep medical learning—but, boy, did they know their patients!

Perhaps their diagnostic lore was more or less limited to the recognition of a coated tongue, an inflamed throat, a few characteristic rashes, diarrhea and fever. Their prevailing philosophy was never better expressed than by a long gone professor in the old Kansas City College of Physicians and Surgeons who—according to a doctor who was old when I was a mere stripling newspaper cub—used to tell every graduating class: "God is going to cure nine out of ten of your patients. Your job is not to *kill* that tenth one."

But that bluff and hearty, back slapping fraternity of medical men left their patients feeling better for the mere fact that they had breezed into the sick room and brought with them an aura of superb confidence and deep personal interest in the welfare of that languid and depressed figure in the bed. It more than made up for many a deficiency in diagnosis and pharmacopoeia.

And by and large the whole world loved the doctor—and would fight for him, if necessary, at the drop of anybody's hat.

Your problem is to recapture that human touch he had in such abundance, and superimpose upon his

primitively gross anatomy the bewildering proliferation of cytological minutiae which have made your very clinical conversations utterly incomprehensible to 999 laymen out of a thousand, in such a way as to emerge with a synthesis that will command the trust and the respect—if not the affection—of the most untutored day laborer who happens to cross your path.

That may sound like a large order. But, when you establish the human touch, your patients will ordinarily accept the closed mysteries of science on trust.

The first stone in that foundation, I would say as a layman passing a purely empiric judgment upon other laymen, would be to keep always in mind that so far as each and every patient is concerned—his is the only case you have. Even though he cannot have failed to observe that other chairs in the waiting room were occupied, he is quite convinced in his subconscious mind that his case ought to be the really important one—the one in which you are professionally interested clear up to your ears. *Treat* him that way and he is going to go away convinced that here, at last, is a doctor who understands.

And, speaking of waiting rooms, try to manage your engagement book so that there are never more than two people waiting at any one time. Then they won't feel quite so much as though they are in a medical assembly line—or a public health clinic. Their ego will purr like a well fed kitten. When they approach your desk they will do so in a relaxed and much more cooperative mood—ready to accept your subtle implication of manner and expression that their case is, indeed, outstanding "as a star, when only one is shining in the sky."

Then, when the interview is launched, allow ample time for it. Encourage the patient to get it all off his chest. Let him ramble some, even if parts do sound a bit aimless. The best internal medicine man I ever knew told me once that patients very often unthinkingly exposed diagnostic factors of crucial importance when they were through with the formal interview and just chatting casually.

Make it a practice to explain in non-technical language what you believe the condition to be, what you are doing for it and why. So dense is the ignorance of most people about how the human body is put together and the functions of its parts that it is highly questionable if a majority of your patients will still have any clear cut idea of what you are talking about.

But, you will have established the fact that you regard yourself as one human being living on a plane of reasonable equality with another human being. And, if you ever get that idea firmly implanted in that patient's mind—none of his friends had better

try to criticize you for your third motor car, your wife's preference for mink coats or your membership in the town's most exclusive country club.

In all earnestness I would recommend rather urgently that you try to strike some kind of a common-sense balance between your fees and the economic status of the individual patient—at least in the borderline cases. In all probability you will make just as much—or quite possibly more—money in the long run. And you will garner ten times as many devoted friends for yourself and your profession; and there are occasions on which that is worth more than a dozen fat bank accounts!

Finally—and most urgently of all—don't get the cynical and sophomoric idea that the Hippocratic oath is just a bit of old-foggyish hogwash, dredged up out of the ashes of a long dead past by some of the antiquarians among you. Genuine and sincere service is always the basis of genuine respect and loyal fel-

low feeling. Even though the material rewards of that philosophy may seem slower in coming than for the flashy antics of your professional egomaniacs—they, are, in the end, larger, richer and infinitely more secure in a world of social ferment.

Living that oath—rather than merely mechanically subscribing to it—is your best guaranty of a future free from the heavy and frustrating hand of arrogant and arbitrary political regulation—free from any denial of your rightful power to use your conscientious professional skill as your individual judgment dictates in each individual case—free to reap and retain an honestly earned prosperity that only the widest base of public good will can adequately protect for you.

And with that, ladies and gentlemen, your somewhat apologetic lay interloper wishes you one and all many, many years of happy, successful and satisfying practice.

FILM CATALOG AVAILABLE

The 1962 Public Health Service Film Catalog of medical-health related motion pictures and filmstrips has recently been published by the National Medical Audiovisual Facility. The Audiovisual Facility, a part of the Public Health Service's Communicable Disease Center in Atlanta, announced that single copies of the 78 page catalog of educational films are available to persons and institutions with teaching functions in the health sciences. While a few of the films listed are of interest to the general public, the majority are technical in nature. Most were produced by the National Medical Audiovisual Facility for various programs of the Public Health Service.

The nearly 350 cataloged films are available without charge upon two weeks notice. Requests should be directed to the Communicable Disease Center, Atlanta 22, Georgia, Attention, National Medical Audiovisual Facility. The borrower pays only return postage and minimum insurance. Film categories range from accident prevention to water supply, including such subjects as bacteriology, dental care, insecticides, communicable diseases, and radiation. Each film is listed by title, with a short description of content, length, date of production, intended audience, and other data.

The NMAF is a central facility for the Public Health Service, with responsibility for the development, production, acquisition, distribution, and utilization of medical motion pictures and other audiovisual forms. The National Medical Audiovisual Facility also publishes other film catalogs and serves as a film reference and information center.

Degenerative Diseases of C.N.S.

Cerebral Lipidoses and Demyelinating Diseases

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THE LIPIDOSES consist of a number of disorders in which the brain, and in some instances other organs of the body, shows a deposition of a lipid substance. Most of the conditions are genetically determined and it is assumed are enzymatically controlled. The diseases which will be included in this group are Gaucher's disease, Niemann-Pick's disease, amaurotic family idiocy and gargoylism.

Then I shall discuss metachromatic leucodystrophy which may be considered an example of dysmyelination as proposed by Poser (1961), and finally I shall mention the chemical abnormalities in multiple sclerosis and sudanophilic diffuse sclerosis or Schilder's disease.

Table I shows the distribution of some of these lipid diseases according to whether they affect the brain only or whether other organs are also involved. A list of some of the substances involved in these abnormal conditions is given in Table II. It is necessary to mention in more detail some of the metabolic processes affecting these cerebral lipids, together with an indication of their distribution in the brain.

It has been shown by biochemists such as Rossiter and Brante that myelin is composed of sphingomyelin, cerebroside, cholesterol, proteolipid and mucopolysaccharide, while Finean using X-ray diffraction techniques and Sjöstrand and Wolman using the

A distinguished British neurochemist and world authority reviews current views of these baffling cerebral degenerative diseases: Gaucher's, Niemann-Pick's, Tay Sachs', Gargoylism, Metachromatic Leucodystrophy, Multiple Sclerosis and Schilder's.

electron microscope have been able to show not only that these facts are correct but have by their methods indicated the relative spatial relationships of the various component parts.

Until recently it was thought that many of these substances were in a constant state of metabolic activity in that they were being metabolized. However, in the past few years by means of the incorporation of a radioactive carbon atom with cholesterol or with serine, workers such as Davison and Payling Wright with their colleagues have shown that this is not correct. These workers have shown that when ¹⁴C is given to young animals, following an initial rise and fall there is maintained a level of isotope which is steady even up to a year or more. By tagging cholesterol at a specific place—position 4 on Ring A—it has been possible to show that even after a year or more the isotope is still present in exactly the same place in the brain cholesterol. Similar results can be obtained with serine from which substance both sphingomyelin and cerebroside can be built up (Payling Wright, 1961). Kabara (1961) has shown that isotopically labelled cholesterol may enter the brain at the same rate as it does the liver in some animals when in a condition of stress. The experiments will

TABLE I	
SOME DISEASES IN WHICH LIPIDS ARE INVOLVED	
A. Brain affected almost exclusively	Amaurotic family idiocy
	Metachromatic leucodystrophy
	Sudanophilic diffuse sclerosis
B. Many body organs as well as the brain affected	Niemann-Pick
	Gaucher
	Gargoylism

TABLE II	
SUBSTANCES INVOLVED IN LIPID DISEASES	
Sphingomyelin	} Sphingolipids
Cerebroside	
Ganglioside	
Sulphatides	Mucopolysaccharides
Cholesterol	

need extension before one rejects the now generally accepted view that once a lipid is laid down in the brain it is not altered.

Sphingomyelin and cerebroside both contain the sphingosine radicle, as does ganglioside. As well as sphingosine, sphingomyelin contains phosphorylcholine whereas cerebroside contains a hexose component, and both can be shown to be built up from serine.

It is known that varying fatty acids may be present for Merz (1930) has shown that normal brain sphingomyelin contains stearic, lignoceric and nervonic acids; but Thannhauser (1957) mentions that the first two predominate with only traces of nervonic acid in the brain, while the visceral sphingomyelin contains palmitic and lignoceric acid only.

The cerebroside in the brain contain galactose as their hexose, whereas the visceral organs have glucose as part of the cerebroside present.

Nerve cells and axons contain some cholesterol as well as lecithin and cephalin. Another compound found within the nerve cell itself is ganglioside first described by Klenk (1939). This German chemist has conducted much research on this subject insofar as the nervous system is concerned while other workers have found that some of the sialic acid compounds, one of which is present in ganglioside, are connected with virus haemagglutinin inhibitory mucoproteins and in glycoprotein from the lipid free stroma of bovine red cells. The exact formula of ganglioside is not known but Klenk has suggested two possibilities. Klenk (1955) is of the opinion that in some way ganglioside assists in the laying down of myelin.

A knowledge of the normal distribution of the lipids in the brain is essential. Table III illustrates the type of results one can expect in an adult and a child and a difference is seen between them.

The examination of brains from children of vari-

ous ages illustrates that there is an increase in many lipids during foetal life and in early childhood (Cumings *et al.* 1958; Balakrishnan *et al.* 1961). At about the age of eight years there is a close approximation in lipid content of the brain to that of an adult. There is a difference between the findings in a brain removed at postmortem and a portion obtained at surgical operation. Biopsy specimens show a higher level of some phosphorus holding compounds (Cumings, 1960).

Turning now to disease processes, each condition will be illustrated by cases examined personally.

Gaucher's Disease

Many of the cases occur in young children and affect the viscera especially the spleen which is often considerably enlarged. A very few—probably only three—of such cases have been investigated in as far as the brain has been concerned and in no case was abnormality of the cerebral lipids found when evidence of cerebral involvement was lacking. Occasionally cerebral symptoms do occur and a dozen or so cases have been investigated clinically and histologically. Recently one such case was seen and biochemical analysis was also made (Maloney and Cumings, 1960). The brain showed swelling of many neurones with a lipid which was P.A.S. positive. Typical foamy cells were present in the spleen. Chemical analysis of the spleen revealed 7.6 per cent of cerebroside which is about six to ten times the normal and is similar in amount to that found by other workers such as Thannhauser (1953). The brain also showed abnormalities as can be seen in Table IV.

The cerebroside of both spleen and brain were extracted and the type of hexose determined. Normally in the brain cerebroside, the hexose is galactose whereas in the spleen it is glucose. In this case the brain cerebroside contained 63 per cent of glucose

TABLE III
LIPIDS IN NORMAL BRAIN

	Cerebral White		Cerebral Cortex	
	ADULT	1 WEEK OLD INFANT	ADULT	1 WEEK OLD INFANT
Total phospholipid	21.8	22.7	22.1	26.0
Sphingomyelin	7.4	4.0	4.4	5.2
Total cholesterol	14.0	4.5	7.0	5.2
Esterified cholesterol	0.3	0	0	0
Cerebroside	19.3	2.4	9.5	4.2
Total hexosamine	0.25	0.7	0.5	
Ganglioside			0.8	1.1
Water (%)	67.0	87.7	84.2	90.4

Results in g./100 g. dry tissue (except water).

TABLE IV
LIPID CONTENT OF BRAIN AND SPLEEN IN
GAUCHER'S DISEASE—AGE 8 YEARS

	Cerebral White	Cerebral Cortex	Spleen
Total phospholipid ..	17.8	14.8	11.8
Sphingomyelin	10.0	3.2	6.7
Total cholesterol ...	10.3	7.0	7.6
Esterified cholesterol .	0.4	0	0.4
Cerebroside	20.7	17.5	7.6
Total hexosamine ...	0.3	0.6	0.4
Ganglioside		1.4	
Water (%)	73.7	85.6	72.5

Results in g./100 g. dry tissue (except water).

and 37 per cent galactose, whereas in the spleen the major part of the hexose was glucose. These findings as far as the spleen is concerned corroborate those of many other workers.

This condition is one involving the abnormal deposition of, as far as is known, a normal cerebroside in a number of differing organs—spleen, bone and brain. The mechanism is unknown but some enzymatic process must be in error (Stein and Gardiner, 1961).

Niemann-Pick's Disease

This is also a disease commonly affecting young infants even though as in the previous disorder, older subjects may be affected. Only rarely has the brain been recorded as involved, and these patients are almost invariably infants or young children. There are some 14 cases on record in which some chemical examination of the brain has been made (Cumings, 1960); Sobotka and his colleagues (1930) estimated total cholesterol which was found to be raised, while Klenk (1934) found that the deposited material was sphingomyelin and that this was the substance in the foamy cells and differentiated them from those found in Gaucher's disease.

Klenk found excess of sphingomyelin both in the viscera and in the brain. Most of the brains of the cases so far described do demonstrate this increase in sphingomyelin and also an increase in cholesterol, a feature Uzman (1958) found in the spleen. Klenk (1957) also described an increase in ganglioside in the cerebral cortex in three cases, a fact confirmed by a few other workers.

I have now examined material from a child of nine months as well as from two siblings—a boy of six and his sister of eight years.

The histological picture in all the cases showed the typical findings of other cases with ballooning of nerve cells and the presence of foamy cells in the

spleen, lungs and bone marrow. The chemical findings showed an increase in sphingomyelin, cholesterol and ganglioside as can be seen in one of these cases in the cerebral cortex and the spleen in *Figure 1*. Similar results were obtained in the other two cases.

Amaurotic Family Idiocy

This term is one very commonly used to include the conditions known as Tay Sachs' disease, the infantile, late infantile and adult form as described by Kufs.

The clinical picture of the late infantile and the Tay Sachs' variety differ somewhat even though both are well known, but it should be mentioned that the latter type usually affects very young infants often of Jewish parentage. Such infants are usually blind and show macular degeneration or the so-called cherry red spot. Histologically there is degeneration of the neurone with a deposition of a lipid substance which stains red with both P.A.S. and Sudan stains.

Klenk (1939) examined the brains of some of these cases of Tay Sachs' disease and found no increase in phospholipids, such as sphingomyelin. However, shortly after he found an increase in a substance which later he demonstrated was ganglioside (1942). This fact has been confirmed by some workers since and a number of cases have been shown to have normal or slightly lowered phospholipid levels with raised ganglioside contents. However, Klenk did not find a raised ganglioside level in the other forms of amaurotic family idiocy but this can be partly ex-

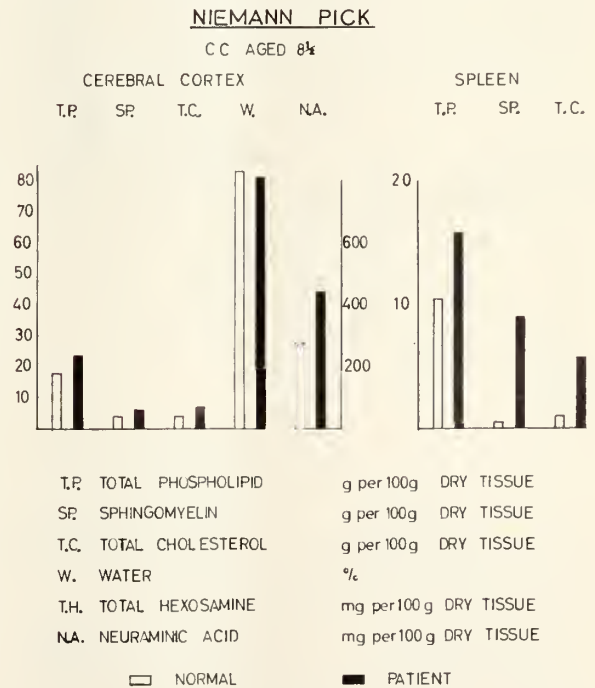


Figure 1. Lipid analysis of cerebral cortex and spleen in a case of Niemann-Pick's disease.

plained for although cells distended with lipid are present in these other forms they may be fewer in number. I have now examined portions of brain from some 25 proven cases of amaurotic family idiocy including the Tay Sachs' variety and most show this increased level of ganglioside. One example of Tay Sachs' disease is shown in a child of two and one-half years in which such an increase was present (Figure 2). Table V illustrates the results obtained from the examination of the brain of a child of six years with amaurotic family idiocy and there is a loss of phospholipid with a slightly raised neuraminic acid or ganglioside level.

Gargoylism

Jervis (1942) described a case which almost certainly belonged to this group, although clinically it was allied to amaurotic family idiocy, and when he examined the brain he found an increased content of a substance which gave a positive Bial reaction. Brante has done much work on patients with gar-

TABLE V		
LIPID CONTENT OF BRAIN IN AMAUROTIC FAMILY IDIOCY—AGE 6 YEARS		
	Cerebral White	Cerebral Cortex
Total phospholipid	21.9	20.4
Total cholesterol	12.7	6.1
Esterified cholesterol	0	0
Total hexosamine	0.36	0.70
Ganglioside		2.3
Water (%)	75.1	81.9

goylism and he has examined the lipids in the brain and also the nature of the deposited material that is found in the spleen, liver, the mitral valve, the cornea, and many connective tissue areas. In the brain Brante (1957) has found an increased content of ganglioside, whereas the deposited material in the connective tissue, in the organs and other areas, is a mucopolysaccharide, a chondroitin sulphuric acid ester.

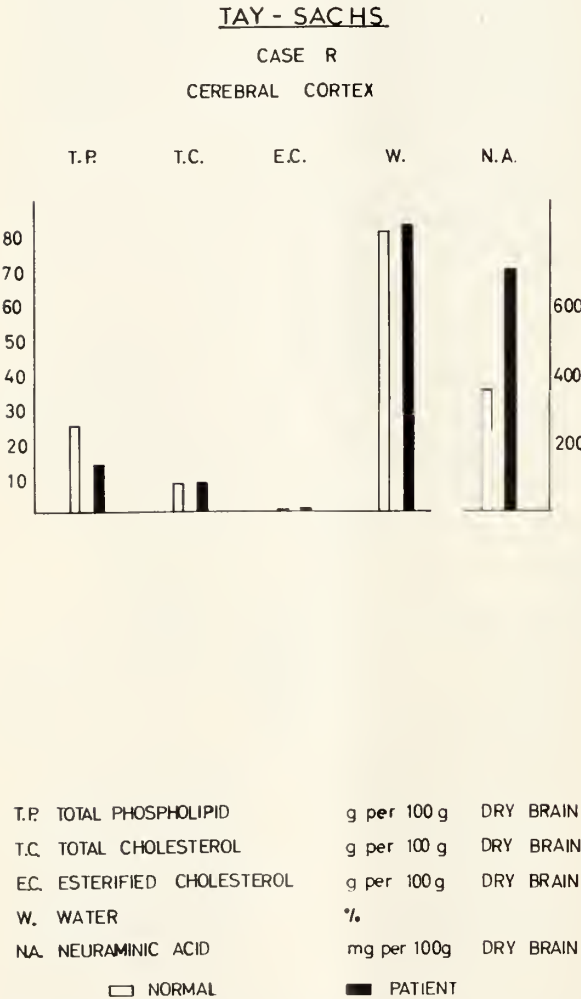


Figure 2. The lipid composition of the cerebral cortex in Tay-Sach's disease.

Metachromatic Leucodystrophy

It is generally recognized that this condition is familial and that there are three main types, namely infantile, late infantile and adult forms. Patients in both the first two groups exhibit very similar clinical signs as well as pathological abnormalities.

It is a condition in which there is present in the cerebral white matter metachromatic material, which is almost certainly a chondroitin sulphuric acid ester—a sulphatide. This substance is closely related to cerebroside in structure and formation. There is therefore present in the brain in this condition a normal constituent but in a greater amount than is usual, while as might be expected cerebroside is reduced, and accordingly myelin is not laid down in the usual manner. Hence the use of the term dysmyelination. It is true that Einarson *et al.* (1961) as well as Edgar (1957) would prefer the condition to be included in the lipidoses.

Examination of a case recently showed the typical histological features in all organs including the brain, while the chemical examination revealed the results seen in Figure 3. There is a well marked loss of phospholipids but no reduction in total cholesterol. Neuraminic acid is almost normal as also is the water content. There are raised levels of total and of lipid hexosamine in the brain and a fourfold increase in total hexosamine in the spleen. Sulphatides and cerebroside are normal.

A number of such cases have now been examined in my laboratory and the findings in one case will be described. Table VI gives the clinical story of a

GARGOYLISM

B. AGED 2 YEARS

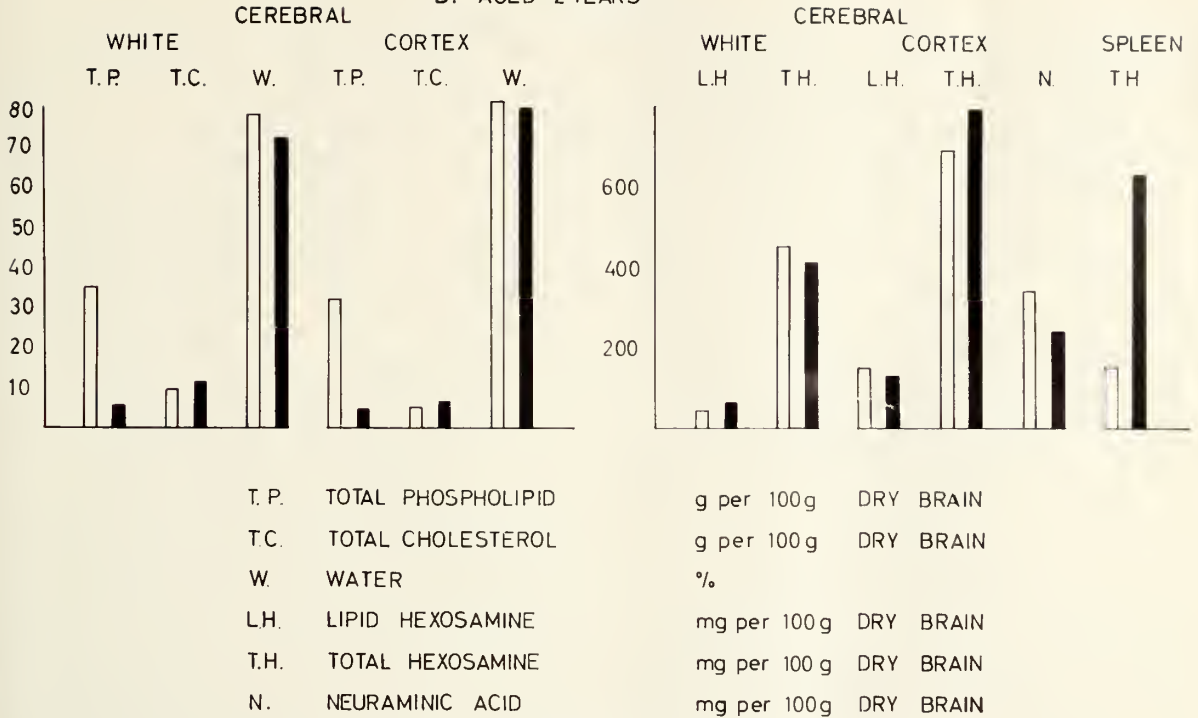


Figure 3. Gargoylism. The lipid chemistry of the brain and the spleen.

female child of nearly three years. The histology of the brain showed a typical picture and the kidney and gall bladder showed characteristic findings. The chemical findings in this case are shown in Table VII and there is a loss of phospholipid but without the presence of esterified cholesterol. There is a well marked increase of total hexosamine and of sulphatide. This finding has been constant in all the cases I have examined.

Edgar (1957) found raised levels of lipid hexosamine and Austin (1957) found metachromatic material in the urine and later reported increased sulphatides in the brain and kidney (1959). Others too have had the same experience (Black and Cumings, 1961; Mossakowski *et al.* 1961).

TABLE VI	
METACHROMATIC LEUCODYSTROPHY	
FEMALE AGED 2 YEARS 10 MONTHS	
Elder of 2 children, younger well at 15 months.	
HISTORY:	Developed normally until 22 months, since when tendency to stumble and fall.
CLINICAL:	Ataxic, muscles hypertonic. Reflexes increased, extensor plantar. Nystagmus. Speech dysarthric. Later unconscious in a state of decerebrate rigidity and with convulsions.
C.S.F. and BLOOD: No significant abnormalities.	

TABLE VII		
CEREBRAL LIPIDS IN METACHROMATIC LEUCODYSTROPHY		
FEMALE AGED 2 YEARS 10 MONTHS		
Substance	Cerebral White	Cerebral Cortex
Total phospholipid	10.7	11.5
Total cholesterol	9.4	7.4
Esterified cholesterol	0.1	2.0
Neutral cerebroside	6.4	—
Ganglioside	—	0.6
Total hexosamine	0.64	0.83
Lipid soluble hexosamine	0.05	—
Water soluble hexosamine	0.05	—
Sulphatide	2.7	—
Water (%)	78.9	83.6

Results in g./100 g. dry tissue (except water).

Demyelinating Diseases

Only two such conditions will be mentioned, namely multiple sclerosis and Schilder's disease or sudanophilic diffuse sclerosis. The chemical results will be given before any discussion of the findings.

In multiple sclerosis there is evidence of demyelination with loss of all myelin lipids and in active lesions breakdown products such as cholesterol esters are present. A recent case examined showed a plaque in the upper cervical cord and in the lower medulla and *Figure 4* illustrates the findings in this less usual type of case. In addition there was a loss of plasmalogens in the plaque, which was greater than the general loss of phospholipid. Usually there is an increase of ganglioside in the cortex, a finding also obtained by Plum and Hansen (1960).

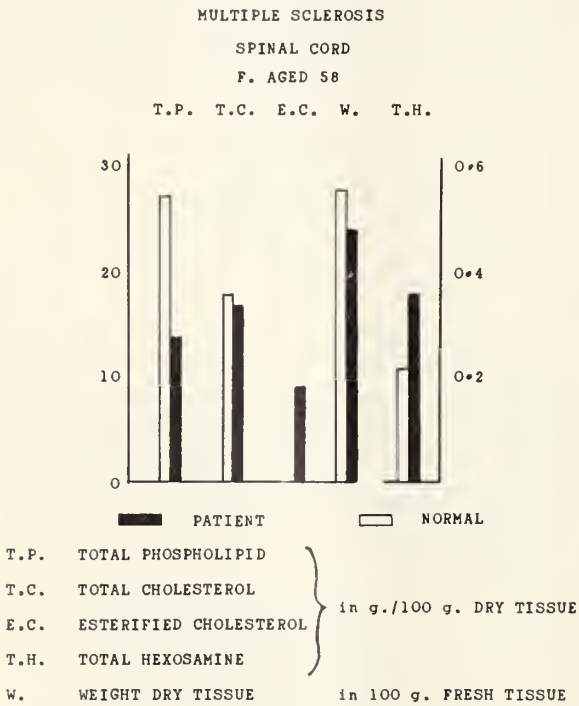


Figure 4. The lipid content of a diseased area of spinal cord in multiple sclerosis.

In sudanophilic diffuse sclerosis, as its name implies, there is damage in the white matter with the deposition of material staining with the Sudan or Scharlach R methods. The chemical findings are very similar to those seen in multiple sclerosis and these are a loss of myelin lipids with the presence of cholesterol esters as seen in *Figure 5*. However there is almost no increase in ganglioside in the cortex, but there is an increase in total hexosamine in the white matter. Hexosamine may be found in three fractions, water soluble, lipid soluble and residual which is probably protein bound. In metachromatic leucodys-

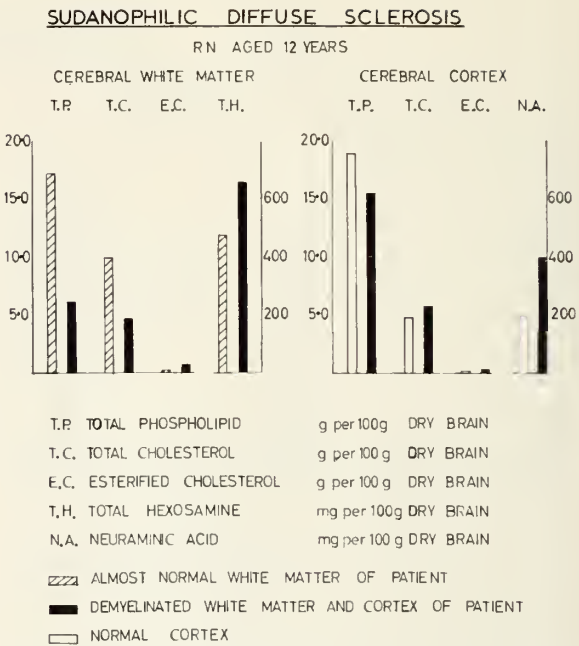


Figure 5. The lipid composition of the brain in a case of sudanophilic diffuse sclerosis.

trophy all fractions may be increased whereas in sudanophilic diffuse sclerosis only the residual fraction is raised in amount. This parallels the results found in inclusion body encephalitis and similar infective lesions.

Multiple sclerosis is often regarded as a myelinoclastic disorder and this is a very good description. It represents a breakdown of myelin through normal pathways without any evidence of an infective process being present.

Sudanophilic diffuse sclerosis is, however, somewhat different chemically and resembles infective disorders in which a breakdown of myelin is also found. These conditions can be considered as reactive in nature.

Table VIII lists some of the findings from a diagnostic aspect. It can be seen that it is possible to make a diagnosis in many conditions from the biochemical abnormality that is found. An examination of biopsy material obtained at surgical operation will enable one to make an accurate diagnosis in these conditions. Over 160 such examinations have now been made and in less than half the material has been normal while in 75 per cent of the remainder an opinion based on chemical analysis has resulted in a definite diagnosis. This opinion has almost invariably been in agreement with the histological diagnosis, and in my view is of sufficient merit and value to warrant the clinician undertaking this procedure. Table IX lists some of the results that have been obtained by using these methods and the figures lend support to the claims just made.

TABLE VIII
LIPID INCREASE IN SOME DISEASES

	<i>Amaurotic Family Idiocy</i>	<i>Metachromatic Leucodystrophy</i>	<i>Sudanophilic Diffuse Sclerosis</i>	<i>Niemann -Pick</i>	<i>Gaucher</i>	<i>Gargoylism</i>
Sphingomyelin				+		
Cerebroside					+	
Ganglioside	+			+		+
Sulphatide		+				+
Cholesterol esters			+			

TABLE IX
CEREBRAL BIOPSY
TOTAL NUMBER OF PATIENTS: 150

<i>Condition</i>	<i>Opinion From HISTOLOGY</i>	<i>Chemistry</i>	<i>Number of Cases</i>
Amaurotic family idiocy	19	19	24
Metachromatic leucodystrophy .	10	13	13
Sudanophil sclerosis	4	4	4
Multiple sclerosis .	1	1	1
Niemann-Pick ...	1	1	1
Gaucher	1	1	1
No diagnostic abnormality ...	64	64	64
Inclusion body encephalitis	9	4	9
Miscellaneous ...			23
Inadequate material			4
No histological opinion			6
TOTAL			150

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Between Labor Day and Thanksgiving, united community campaigns will be conducted in 2,200 communities across the nation and in Canada. The money contributed in this once-a-year drive supports 34,500 health, welfare and recreation agencies serving 24 million families. That is why giving your fair share through your United Fund or Community Chest not only makes sense but your one United Way gift works many wonders.

Security in Maturity

The Problem of the Aging

RALPH E. WHITE, M.D., *Garnett*

DISPOSITION AND CARE of the aging is one of the major problems facing nearly every civilized nation today. Our attempts at the solution of this problem have seen the evolution of Old Age Assistance, Old Age, Survivors and Disability Insurance, the Kerr-Mills Bill and now the battle in the Congress over the King-Anderson Bill to be supported by Social Security taxation. We have approached the problem scientifically with research study in the field and with the creation of the specialties of geriatrics, and gerontology, which deal exclusively with the diseases and problems of our Senior Citizens. This problem is neither new nor unique. Two thousand years ago Cicero was prompted to write a treatise on the same subject entitled *De Senectute* in an effort to help his elderly friends find more contentment in their retirement. The essential difference between the problem, then and now, is magnitude.

At the time Cicero wrote his essay the average life span of a Roman citizen was 22 years. A century ago in the United States life expectancy was 45 years; in 1955 it had extended to 67 years and is now estimated to be about 70 years. In these United States in 1900 only one person in 25 was over 60 years of age; in 1940 it became one in nine, and it is estimated that in 1975 one person in seven will be over 60 years of age. We are literally and actually growing older. The past five years have yielded in this country a net yearly increase of 370,000 persons reaching the age of 65 years. Of these persons 35 per cent are completely independent, and of course, some wealthy. An additional 50 per cent are self-supporting with a little help from relatives. The remaining 15 per cent require public assistance, either partial or complete.

I think we should pause here to see why there are more oldsters now than there were in Cicero's time. The reason is two-fold: decreased infant mortality and control of infectious disease with antibiotics. There is no indication that people live any longer now than they did 2,000 years ago. It's just that more of them live to grow old. We do not know our proper life span. Some experts estimate it to be 100 years. We do know, however, that the rich diets that we live on today coupled with our sedentary habits cause a more rapid infiltration of fat into our tissue and gland cells that leads to death more rapidly than did the leaner diets and greater physical activity of our ancestors.

This situation may also cause a deposition of calcareous material in our arteries and death of many from coronary artery disease at 50 to 60 years of age. It is possible that we are unduly alarmed about there getting to be too many oldsters and that future generations will barely reach their three score years and ten.

The problem of the aging has many facets, some major, some minor, depending on the point of view.

The problems of old age are not all related to financial hardship and medical expenses. Of importance also are the need for useful or interesting activity—(both physical and mental)—adequate nutrition, and pleasant and suitable surroundings, to mention a few.

The fact that grandpa, who has ruled the family roost single handed for over half a century, now doesn't know Sunday from April is a major catastrophe to the family but a mere incident to outsiders. The statistics presented are interesting but not *per se* the real cause for any problem. The 15 per cent who require public assistance do present a major problem that is being studied and constitutes a large portion of the over-all problem with which we are concerned. Our problem exists because of the socio-economic and medical factors produced by the changing conditions incidental to retirement and old age. These are so intertwined that separate discussion is extremely difficult, and actually unnecessary. We will discuss them in a somewhat chronological order, beginning with enforced retirement.

Enforced retirement either because of age or physical disability requires the adjustment to a different and usually lower standard of living. It might even require the living with relatives in order to meet the reduced budget. It means a loss of prestige, independence, and usual activities, together with a change in environment and often friends and acquaintances. It often brings on an enforced idleness because of the nature of the disability, or the lack of avocation, or hobby, to fill in the leisure hours. A feeling of

frustration, rejection, and depression follows which may become accentuated to the point of suicide.

The above sequence is, of course, the extreme. Most cases are only a minor modification of this but I have seen the above enacted exactly as I have related. What usually happens is the adjustment of the standard of living to meet the reduced budget. Again, our statisticians tell us that 42 per cent of people past the age of 65 years are malnourished, but not necessarily under-nourished. Manifold factors may combine to produce this, such as: unbalanced diet, mental, or emotional stress, gastrointestinal disease, poor teeth or ill fitting dentures, lowered metabolic rate, reduced muscular activity, and many other things. On a limited budget the diet tends to become heavy with starches and low in proteins and minerals. There is reliable evidence that many of the psychoses of the elderly have their origin in malnutrition. Thus, nutrition becomes a major part of our problem in the care of the aged.

As we pass into the 70's these problems become accentuated. The arteriosclerotic changes in the heart begin to make themselves known by early signs of failure. Similar changes are taking place in the liver and other vital organs. There is a loss of muscle tone together with a replacement of muscle and gland cells with fibrous tissue. The individual begins to feel weak and lose his push and drive. About this time demineralization of the bones becomes extensive enough that a toe caught on the doorsill means a broken hip.

Usually about the middle 70's grandma gets too feeble to "baby-sit." She just doesn't have the strength to run after the youngsters any more. She gets short of breath and her feet are swollen at night. Grandpa has long since gone to his reward. He died of a heart attack when he was only 68 because he could scoop the snow off the drive just as good as any kid. Mother and daddy both work so the doctor thinks grandma should go to a nursing home where she could rest and be waited on. She is all upset about it but there just doesn't seem to be any other way.

It is the hope of all to reach the ripe old age of 80 years. May God bless us with the vigor of mind and body to enjoy it. Nowadays the body frequently makes it in pretty fair shape but somewhere along the line the mind gets caught up in the daydreams of the past and becomes what the neighbors call "childish." This condition may vary from a mild forgetfulness for recent events to a complete oblivion for all that transpires and disorientation as to time, place, persons and events. This means that we have a pretty healthy and active vegetable on our hands and this is a real problem.

An over-all survey shows these oldsters to be a

pretty healthy lot. They have survived the ravages of the infectious diseases of their younger years and now possess a certain amount of immunity. The miracle drugs, the antibiotics, have rescued them from pneumonia and now they have only the diseases and conditions peculiar to their age to contend with—cancer, arteriosclerotic heart disease, broken hips, strokes and the senile brain syndrome.

A quick survey tells us that our problem now boils down to the emotional upset attendant to an enforced retirement, the malnutrition because of a reduced budget, and the mental and physical breakdown of the declining years. The first item is almost entirely an individual matter and should be handled by the individual. The individual can do something in the way of prevention in the other items but not much in the way of treatment when he, himself, is the victim.

We should begin to prepare for old age in our youth. We first must realize that it is part of Nature's plan that all living things shall mature, grow old and die. With this in mind we should plan to retire at a certain age and with a definite idea in mind as to how we will manage our retirement. Our plans should be for an enjoyable retirement, something that we will be looking forward to rather than something that we will resent having to do. We should plan our retirement around a type of insurance, or investment program wherein we will not get caught short if the date for retirement is unexpectedly advanced several years, or the cost of living goes up more than we had planned. Financial security does not, however, solve the whole problem. We will have plenty to eat, a place to live, but nothing to do. We need something to do that is soul satisfying, a hobby that we have never had enough time to fully enjoy, a fling at politics, writing, painting, building, any of a hundred thousand things that people with full time jobs haven't the time for but that are useful, or even necessary adjuvants to our way of life. We all have hidden talents that we have just never been called upon to exercise. Grandma Moses is a good example.

One does not need to be an astute observer to note that it is the mental breakdown and not the physical that keeps people from enjoying their more mature years and retirement. Pathologists have noted on post-mortem examination that the brain cells of people mentally active and alert until death in their late 80's are no different than those of people of the same age dying with active psychoses in mental hospitals. Does this not mean that we can prevent a mental breakdown by keeping ourselves mentally active, alert, and learning new things as long as we live? Cicero thought so, and the great thinkers throughout the ages have thought so. It is hardly to be expected, however,

that a moron will turn out to be a genius in his old age but he could at least work at it.

What we have just said is excellent for prophylaxis but what about the situation that already exists? Retired couples usually get along very well so long as they both remain in reasonably good health but what happens after one of them dies? Should the children be obligated to take the survivor into their homes and care for him, or her, usually her? My answer is no! I would like to tell you of a case in point. A widowed woman in her 80's is the mother of six sons. The children of these six sons are grown, married and gone from the paternal homes. The families met and agreed that each would take grandma into their homes for a month at a time. It is no difficult matter to tell where grandma is. The first daughter-in-law consulted me because of spells of blindness in the right eye; the second because her alcoholic husband had increased his consumption of spirits to the point of intolerance; the third because of nervousness and inability to sleep nights; and the fourth, where grandma is now staying, came because of spells of lightheadedness. She has had heart trouble for several years and the nervous tension and fatigue were causing her heart to skip beats. Does one person have the right to wreck so many homes simply because she mothered these sons? Again, my answer is no! Grandma has always been a strong-minded woman and although she is probably physically more able than some of her daughters-in-law she thinks she should be waited on every minute of the day and night while she is "visiting" in her son's home. If grandma were the sweet little old lady that grandmas are supposed to be such an arrangement would never come to the attention of the doctor, and I can see nothing wrong with the arrangement in that sort of case.

Please don't get me wrong. I'm with those who contend that we have a debt with our parents that we can never repay but parents should be in a position and condition to appreciate what we do. Also, what we do for our parents should be fitting for their needs. Taking mother to the hairdresser once a month may boost her morale quite a bit but that pittance that comes from the Department of Social Welfare still leaves quite a gap in her ordinary needs for daily living. The same may be said for television and the other luxuries children are apt to give their parents as a balm for their own consciences while the parents actually go hungry on their allowances. The Welfare Department has no obligation to take care of our parents simply because they are on Old Age Assistance. They merely distribute the money they have for that purpose among their clients. In some countries children are legally responsible for their parents when they become invalidated by age and infirmity. I think the idea worth pondering.

Parents are usually as opposed to living with their children, perhaps more opposed, than their children are to having them. I am as equally opposed to having them live alone. The diet becomes stereotyped and inadequate when anyone lives alone, be he young or old, rich or poor. It makes very little difference. When one is left to prepare his own food he fixes the handiest thing regardless of his culinary ability.

My answer to the care of these lonely old people with inadequate means is community boarding homes. These should be more than just a place to eat and sleep. There should be facilities for occupational therapy to teach them to do things to occupy their time and minds. There should be facilities for those with hobbies to pursue their hobbies. There should be shops, recreation halls, gardens, libraries, etc., facilities for keeping everybody busy and happy. I realize that this would be a huge undertaking but no greater than slum clearance, or building public schools. We have such facilities for those who can pay but very few for the others. They have no choice but to ride the old rocking chair and watch television. That is all some of them want to do but there are many others who would be much happier with some kind of work to do.

There is a tendency in our present nursing homes to provide just custodial care for our aged regardless of the state of their health, ability, or desire to be active. Nursing homes operating in rural communities such as ours on the low rates paid by private persons and the still lower rates paid by the Department of Social Welfare cannot afford to provide more. The additional facilities should be provided as a community project because, barring the intervention of a kind Providence, it is a situation we will all find ourselves in one day. The living quarters, room and board, could well be provided by the private nursing home but the recreational, rehabilitation and occupational therapy units together with the trained personnel should be a community responsibility the same as our public schools. I am also sure that the talents of the senior citizens, themselves, would be willingly recruitable to the cause. A responsible job is just as good for Senior's ego as it is for Junior's.

In addition to these and in conjunction with our acute disease hospitals we need another type of facility providing convalescent and domiciliary care for the oldsters that have been discharged from the acute disease hospitals as having received maximum benefit of hospital care but still not able to care for themselves, nor yet fit candidates for care in the ordinary nursing home. These people fall into several categories. The people who have had strokes require long term physical therapy for maximum rehabilitation, as well as those with broken hips, and some

(Continued on page 396)

Infected Abdominal Wounds

A Simple Procedure Which Has Helped in the Treatment of This Complication

CECIL C. HUNNICUTT, M.D., *Sabetha*

GRANTED THAT it is always the "other fellow" who gets the infected wounds following abdominal surgery, still, we will have to admit that such infections occasionally do occur. Being one of those "other fellows" who has had this misfortune, I would like to pass on a bit of information that may prove helpful to others of my kind.

One morning when I walked into the room of one such patient, the odor seemed more pungent than usual. During the course of changing the dressing, a fortuitous thought occurred. Permit me to make some brief reports:

Case 1

A 71-year-old, moderately obese woman was admitted April 6, 1961, with clinical and radiographic signs and symptoms of acute small bowel obstruction without visible or palpable cause. Without going into all details, an internal hernia was suspected. Exploration was via a right, mid para-median incision. The obstruction was found to be a strangulated, right, femoral hernia. The exploratory wound was closed in anatomical layers and an appropriate incision was made to expose the strangulated hernia which, incidentally, still could not be identified by palpation despite the knowledge of its presence. A segment of gangrenous bowel required resection. On the fourth postoperative day foul smelling drainage began to ooze from the middle of the exploratory wound. Silks were removed to facilitate drainage. On the seventh postoperative day similar drainage occurred from the inguinal wound. By the eleventh day gaping of the upper wound was so marked that evisceration was feared. Accordingly debridement of the wound was done and the edges were approximated with several mattress sutures of wire. The wires held securely but drainage persisted. On the eleventh day foul smelling, thick, purulent material was draining freely from the wound. It is at this point that our story begins.

The lower wire was removed to afford a better access to the abscess cavity. With the aid of a Kelly forceps a 100 mg. Furadantin tablet was placed as far as possible into the depths of the abscess cavity. Another tablet was placed in the inguinal wound.

Twenty four hours later the drainage had changed

so dramatically that it was hard to believe. The odor was gone, the amount of drainage was greatly reduced and instead of being purulent, it was serous. During the next 24 hours there was scarcely enough drainage to soil the dressing. The patient was dismissed five days after the Furadantin was placed in the wound. The wounds remained free of drainage and healed well.

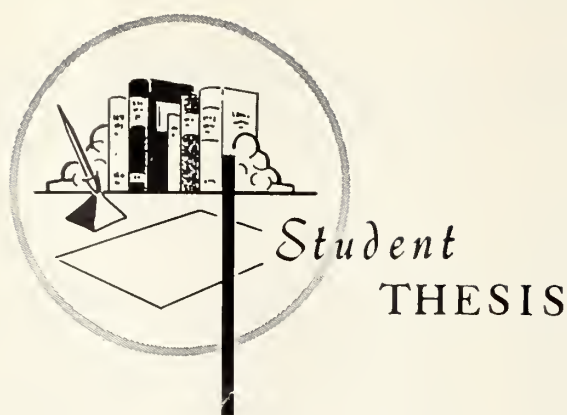
Three cases have been presented in which infected abdominal wounds were treated by the simple expedient of introducing a Furadantin® (Eaton) tablet in the depths of the abscess cavity. In each case an astounding change in odor and character of the drainage occurred within 24 hours. All wounds then healed promptly without local or systemic reaction.

Case 2

A 47-year-old woman was admitted on May 4, 1961, because of hemorrhages associated with multiple uterine fibroids. The following day a panhysterectomy was done. The surgery was uneventful. On the fourth postoperative day the temperature was elevated. On the fifth day redness and a bulging appeared in the mid area of the wound. Silks were removed. Foul smelling, bubbly gravy rolled out. A 100 mg. tablet of Furadantin was placed in the depths of the abscess. The following day the odor was greatly reduced and the drainage was serous and scant.

On the tenth postoperative day, five days after the medication was placed in the abscess, only slight serous ooze was apparent. The remaining silks were removed and the patient was dismissed from the hospital. Five days later she was seen as an outpatient. There was still some serous drainage from the wound. The cavity was large enough to hold only a one-half tablet of Furadantin. She did not return for three weeks. At that time the wound had completely healed.

(Continued on page 396)



Cardiac Arrest and Resuscitation in General Practice

FLOYD MERLYNN COLIP, M.D., Norton*

Introduction

AN IMMENSE VOLUME of literature exists on the subject of cardiac arrest and resuscitation. In 1953 Stephenson reported a reference file of some 1,100 articles on this subject. McCarthy in 1958 emphasized the continued and growing interest in this subject and indicated the volume of new material appearing in the literature: "A superficial review of the literature shows six times as many papers published in the last five years as in the previous fifty."

Prior reports have in large part dealt with the recognition and treatment of cardiac arrest as it occurred in the operating room associated with general anesthesia. However, recently a new field and new impetus has been added to the subject of cardiac arrest, that is, cardiac arrest occurring outside the operating room. The increasing reports of cases of acute coronary thrombosis, severe allergic reactions to an array of drugs, accidental drownings, accidental electrocutions, and severe chest trauma, all of which may give rise to death due to sudden cardiac arrest is an indication of why increasing interest is being generated in such cases. It has also been shown that cardiac arrest in a high percentage of such cases is potentially reversible. With the recent development of a simple nonsurgical method of treatment, closed-

chest cardiac massage, the field of cardiac arrest and resuscitation seems to be moving more out of the field of surgery and into the field of general practice. It is not that cardiac arrest has not been previously recognized to occur under the above circumstances but that it was felt until recently that these were untreatable situations.

There are indeed indications that the closed-chest method of cardiac massage will be and has been used successfully by para-medical personnel, ambulance drivers, rescue teams, firemen, police, etc.; and it has even been advocated that it be taught as a first aid measure to be used by anyone.

Physicians need to be clearly aware of the problem of cardiac arrest outside the operating room. In this paper the diagnosis of cardiac arrest, the criteria for application of resuscitation measures, the methodology of cardiac resuscitation (with emphasis on closed cardiac massage), and the clinical situations in general practice in which treatable cardiac arrest may occur will be discussed.

Definition of Cardiac Arrest

The first problem is that of defining the term cardiac arrest. As pointed out by McCarthy, obviously every death from any cause could be called cardiac arrest, for that is the final episode in every fatality.

A quite frequent definition accepted for cardiac arrest has been Blade's: "The sudden cessation of cardiac function from the effects of anesthesia or surgical manipulation." This definition is mentioned

* This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Colip recently completed his internship at the Broadlawns Polk County Hospital, Des Moines, Iowa, and is now in general practice at Norton, Kansas.

only to say that, for the most part, this paper excludes these commonly discussed cases of cardiac arrest occurring in the operating room and associated with the administration of general anesthetics.

Cardiac arrest as it will be used in this paper represents a sudden, abrupt, immediate and usually unexpected failure of the heart to maintain circulation. The term cardiac arrest is used to include two commonly recognized entities—cardiac standstill or asystole and ventricular fibrillation. Cardiac arrest occurring in clinical situations in general practice is the focus of this discussion.

Diagnosis of Cardiac Arrest

While there are many diverging views in regard to the definition and etiology of cardiac arrest, there is general agreement on the following cardinal signs:

1. Sudden disappearance of radial or carotid pulsations.
2. Sudden disappearance of blood pressure.
3. Cessation of active wound bleeding.
4. Pallor of skin, or cyanosis (if patient in Trendelenberg position).
5. Cessation of cardiac impulse and absence of heart tones on auscultation.
6. Apnea or sudden gasping respiration.
7. Dilatation of pupils and lack of response to light.
8. Ophthalmoscopic evidence of segmentation of blood in retinal veins.

Kevorkian in 1957 pointed out that even with the above criteria cardiac arrest cannot be readily ascertained without direct visualization of the heart. Time quickly becomes the major factor. He pointed out that in 1863 Bouchut described interruption or segmentation of retinal venous blood columns as a reliable sign of death. Since the pupils dilate at death one rarely has any difficulty in attempting retinoscopy. Kevorkian states: "Lack of cardiac output produces characteristic retinal changes that have long been recognized as an accurate sign of death. The most striking of the changes are disappearance of retinal arteries and segmentation of venous blood, both of which occur a few seconds after circulation stops. The venous segments continue to move for several minutes thereafter, during which time cardiac resuscitation would most likely be successful, and they finally become stationary, while remaining segmented."

Criteria for Application of Resuscitation Measures

"Cardiac resuscitation applies to the action taken to save the life of a patient whose heart has suddenly ceased to beat, when there is reasonable expectation

that with prompt treatment his normal cardiac and cerebral function can be restored for an indefinite period."

Two important criteria have been described which should be considered before cardiac resuscitation is attempted outside the operating room.

1. The interval between arrest and institution of massage should be less than four minutes. With the use of post-resuscitation hypothermia and other measures this time limit in some cases may be extended to five minutes.

2. The patient's primary disease should be reversible. However, in the emergency situation it is not always possible to determine this.

Method of Cardiac Resuscitation

Successful resuscitation depends on (A) the immediate re-establishment of cardiac and cerebral oxygenation, (B) a more deliberate restoration of the spontaneous heart beat. To accomplish (A), above, calls for immediate institution of cardiac massage and artificial respiration must be applied by mouth-to-mouth breathing, a suitable bag and mask, or endotracheal intubation.

Cardiac Massage

The open method of cardiac massage has been advocated for a number of years and the basic technique is well known.

Other methods of cardiac massage have been described. The recently described method of closed cardiac massage will be presented here in some detail.

The method of closed-chest cardiac massage is simple. Only the hand is required. The principle is explained by anatomical consideration; the heart is limited anteriorly by the sternum and posteriorly by the vertebral bodies. Its lateral movement is restricted by the pericardium. Pressure on the sternum compresses the heart forcing the blood out. Relaxation of the pressure allows the heart to fill. The thoracic cage in unconscious and anesthetized adults is found to be surprisingly mobile.

With the patient in the supine position on a rigid support the heel of one hand with the other on top of it is placed on the sternum just cephalad to the xiphoid. Firm pressure is applied vertically downward about 60 times per minute. At the end of each pressure stroke the hands are lifted slightly to permit full expansion of the chest. The operator should be so positioned that he can use his body weight in applying the pressure. Sufficient pressure should be used to move the sternum three to four cm. toward the vertebral column.

It has been pointed out that closed-chest cardiac massage provides some ventilation, and if there is

only one person present in a case of arrest, attention should be concentrated on the massage.

This method of closed-chest cardiac massage was developed and reported by Kouwenhoven et al. July 1960. During the ten months prior to reporting, the method had been applied on 20 patients aged two months to 80 years. The duration of massage varied from less than one minute to 65 minutes. On several cases instantaneous systolic blood pressure ranged from 60-90 mm. Hg.

Criteria for Effectiveness of Cardiac Massage

The following criteria may be used to determine the effectiveness of massage:

1. A peripheral pulse should return with each pumping motion.
2. Unless there is permanent brain damage, the pupils will constrict.

We will turn now to the consideration of (B), the deliberate restoration of the spontaneous heart beat. There are a number of measures which may be necessary, including electrical defibrillation, use of drugs, and other ancillary measures; however, it must be stressed that cardiac massage and artificial respiration must be continued while these measures are being instituted.

Electrical Defibrillation

If cardiac arrest is due to ventricular fibrillation, defibrillation must be carried out.

1. Open-chest electrical defibrillation. Electrical defibrillation of the exposed heart has been accomplished successfully many times since the first case was reported in 1947 by Beck. A number of standard defibrillator units have been built. Electrodes are placed on the anterior and posterior surfaces of the heart. Electrical shocks of 60 cycle per second current of 1.5 amperes of a duration of .1 to .2 seconds with a voltage setting of 110 to 270 volts has been recommended. It has been pointed out that a current of less than .8 amperes or more than 10 amperes may provoke ventricular fibrillation.

2. Closed-chest defibrillation. Kouwenhoven et al. reported the development and experimental use of AC closed-chest defibrillation. The most reliable defibrillating stimulus was found to be a single continuous application of about five amperes of 60 cycle alternating current for a period of .25 seconds. A potential of 480 volts open circuit voltage proved sufficient and has been adopted as standard. Hand electrodes are applied, one on the suprasternal notch and the other on the left-mid-clavicular line at the level of the xiphoid. Electrocardiogram jelly and firm pressure are used to insure good contact. An electrocardiographic tracing is necessary to determine the presence of fibrillation as well as its aboli-

tion when the closed chest method of cardiac massage and defibrillation are being used.

Drugs Useful in Cardiac Resuscitation

Although there is much disagreement about the use of the various drugs in cardiac arrest, the following drugs and dosages are generally held acceptable.

1. Drugs useful in cardiac asystole or standstill:

Epinephrine: If there is no forceful, independent beat after five minutes of cardiac massage, epinephrine may be used, one to two cc. of a 1:10,000 solution in children on up to four to five cc. in an adult. Prior to the injection of adrenalin, the heart must be vigorously massaged. Peabody points out that the anoxic heart is very apt to fibrillate when subjected to a cardiac stimulant and reports one case in which the immediate injection of 1 cc. of adrenalin (1:1000) seemingly induced irreversible refractory ventricular fibrillation.

Calcium chloride: Ten per cent calcium chloride has been found to be helpful in improving cardiac tone and augmenting cardiac rate and output. Two to three cc. in children and three to five cc. in adults are recommended, by intracardiac injection.

Isoproterenol (Isuprel): Two mg. diluted to ten cc. with five cc. given into each right and left ventricular cavity has been advocated when the heart is responding, but poorly.

Molar lactate: Ten cc. in each ventricular cavity is advocated when there is no response to the above drugs.

2. Drugs useful in ventricular fibrillation:

Procaine: Procaine has been recommended as a defibrillatory agent though some authors state strong exceptions. That procaine and procaine amide can produce ventricular standstill is reported in a number of cases; therefore, it seems likely that it could be used effectively to stop ventricular fibrillation. Walton reports the abolishment of ventricular fibrillation by the intravenous administration of 15 cc. two per cent procaine HCl (Novocaine).

Potassium chloride: Potassium chloride has been used to produce cardiac standstill when fibrillation persists or when no other means of defibrillation exists. A successful report of defibrillation with KCl, 3½ cc. of a 14 per cent solution, with success after the third administration is reported.

Further suggested drug doses in infants, children, and adults are given in more detail in other references.

Ancillary Measures Useful in Cardiac Resuscitation

Hypothermia: There are several reports indicating that hypothermia has been helpful in treating patients with evidence of brain damage following cardiac resuscitation. Body temperature is maintained

at 32 to 34 degrees Centigrade by a circulating water mattress until there is good evidence of neurologic improvement (72 hours in one case). That hypothermia itself was not without the danger of producing cardiac arrest is pointed out by Peabody. He reported seven cases from his series of cardiac arrest occurring with hypothermia. Inasmuch as all but one of the hypothermic arrests took place at body temperatures below 85 degrees Fahrenheit (29.5 degrees Centigrade) it is probably best not to drop the body temperature below this level.

Other: Other techniques have been employed for reducing cerebral edema after anoxia. Human albumin given intravenously and 30 per cent urea in ten per cent dextrose solution have been used. Morikawa and Steichen used urea, hypothermia and over ventilation (Respiratory Alkalosis) to prevent neurologic damage.

Clinical Situations in Which Cardiac Arrest May Arise

Cardiac arrest associated with myocardial infarction: It has been estimated that sudden death due to cardiac disease occurs 10,000 times each year in the United States. Several theories have been advanced to explain this cause of sudden death in cardiac disease. Beck and co-workers postulated that death from coronary artery disease occurred in either one of two ways: the majority (90 per cent) are due to electrical instability resulting in the sudden onset of ventricular fibrillation; the remainder (10 per cent) are due to actual cardiac muscle failure. It has been further estimated that electrical instability without initial muscle damage kills one-third of all victims with acute myocardial infarction. In the other two-thirds, myocardial damage is present but not significant enough to prevent the heart from responding to cardiac massage.

Though medical scientists are pursuing the causes and method of prevention of coronary artery disease, it has been shown that there is a great potential for cardiac resuscitation in these patients who die because of sudden arrhythmia. Beck states, "The death factor in coronary artery disease is often small and reversible. It is comparable to turning the ignition switch in an automobile or to stopping and starting the pendulum of a clock. The heart wants to beat, and often it needs only a second chance."

It was not until 1953 that successful cardiac resuscitation following myocardial infarction and ventricular fibrillation was carried out. Since that time a number of case reports have appeared in recent literature reporting the application of open and closed cardiac massage in the resuscitation of patients with coronary artery disease. A number of case reports of attempted cardiac resuscitation in patients with myocardial infarction are summarized in Table 1.

As pointed out by the reports, resuscitation is feasible when the coronary victim is fortunate enough to develop cardiac arrest in the hospital, provided supplies and personnel trained in resuscitation methods are available immediately.

Prior to the development of closed cardiac massage death occurring on the golf course, in the office or home, or on the street could hardly be treated by resuscitation. Unfortunately or fortunately as the case may be, cardiac resuscitation has become a subject of great interest to the general public. With the advent of closed cardiac massage, widespread enthusiastic lay-publicity appeared. ("You Can Start a Stopped Heart," *This Week Magazine*, October 16, 1960; "If a Heart Stops—There's Help at Hand," *Reader's Digest*, November 1960, condensed from *Today's Health*, November 1960.) It was pointed out in these articles that any intelligent man or woman can be taught to do closed cardiac massage. Inherent in this problem, however, is the problem of defibrillation which in most cases must be carried out by electrical shock. This presumably would be the responsibility of the general physician. From the standpoint of a number of cases this is the potentially most important field for cardiac resuscitation in general practice.

Cardiac arrest associated with the use of certain drugs including drug reactions: The largest group of drugs other than general anesthetics which has been associated with cardiac arrest is that of the "local anesthetics." This subject has been very extensively presented in Moore's book. Systemic toxic reactions which occur following the injection of a local anesthetic drug are due to either a high blood level of the drug or a true allergy to it. In most instances—98 per cent or more—a systemic reaction indicates an overdose, not a true allergy. Deaths have been attributed to "toxic" reactions to almost all of the local anesthetic agents.

The incidence of cardiac asystole or ventricular fibrillation is reported to be 1:13,475 cases of admission of local anesthetic; however this figure does not include cases of topical application of local anesthetic drugs for cystoscopy, bronchoscopy, or esophagoscopy.

There have been several recent reports, since Moore's book, in the literature pertaining to reactions to local anesthetic agents requiring cardiac resuscitation. Johnston, Jensen, and Byrd reported a case of cardiac asystole following topical administration of tetracaine (Pontocaine). Stahlgren and Angelchik report two cases of cardiac arrest attributed to pontocaine reaction. Cardiac arrest has occurred during rhinoplasty with the topical application of ten per cent cocaine and submucous injection of two per cent procaine. Hartley has reported a case of cardiac arrest associated with the use of lignocaine (Xylocaine®).

TABLE I
ATTEMPTED CARDIAC RESUSCITATION FOLLOWING MYOCARDIAL INFARCTION
(Summary)

<i>Author</i>	<i>Age</i>	<i>Location</i>	<i>Defibrillation by</i>	<i>Duration of Massage</i>	<i>Outcome</i>
Reagan <i>et al.</i>	55	Emergency Room	Internal Elect.	18 minutes	Good; working 6 months later
Turk & Glenn	66	X-Ray Room	—	—	Failure to restore heart action
Beck <i>et al.</i>	65	Hallway & Emergency Room	Internal Elect.	25 minutes	Good; at work 1 year later
Hannon <i>et al.</i>	—	Hallway & Emergency Room	Internal Elect.	—	Died; 13 days later pneumonia and a wound infection
Celio	46	Patient's Room	Internal Elect.	30 minutes	Good; at work 5 months later
Bloomfield & Mannick	41	Emergency Room	Internal Elect.	45 minutes	Good; discharged ambulatory 39th hospital day
	50	Emergency Room	Internal Elect.	In 2 hr.—3 arrests requiring massage	Good; left-sided hemiparesis; at work 3 months later
Nickel & Gale	53	Emergency Room	Internal Elect.	30 minutes	Good; asymptomatic 6 months later
Also Moto <i>et al.</i>	40	Patient's Room	Internal Elect.	45 minutes	Good; asymptomatic 5 months later
	38	Not given	—	5 to start 45 second time	Died 10 minutes after restoring
	50	Not given	Internal Elect.	20 minutes	Lived 9 hours
	60	Not given	—	20 minutes	Failure to restore heart action
Walton	54	Patient's Room	Procaine HCl	20 minutes	Good; asymptomatic 2 months later
Stahlgren & Angelchik	76	Ward	Not given	Not given	Failed to restore heart action
	49	Ward	Not given	Not given	Died; pulmonary embolism
	65	Ward	Not given	Not given	Died; ruptured thoracic aorta & myocardial rupture
	47	Conference Room	Not given	Not given	Failed to restore heart action
McGregor & Newton	51	Ward	Internal Elect.	29 minutes 2 minutes	Good; at work 18 months later
Kouwenhoven	45	Emergency Room	External Elect.	20 minutes	Good; recovered without evident neurologic damage.

Scattered reports in the literature have appeared concerning the use of various drugs and the occurrence of cardiac arrest. A few of these are briefly described.

Severe cardiovascular complications and deaths have been reported following the use of diodrast intravenously.

Schwartz and Lobell report a case of cardiac arrest occurring immediately after the administration of bromsulphalein intravenously with successful resuscitation by open cardiac massage.

The cardiac effects of procaine amide have been widely studied. Epstein in 1953 reported three cases of fatal ventricular standstill and fibrillation during the administration of intravenous procaine amide in the treatment of ventricular tachycardia.

Weingarten *et al.* report a case of cardiac standstill during the intravenous administration of procaine amide.

Bernreiter pointed out that little information existed concerning cardiac manifestations in patients in anaphylactic shock secondary to penicillin injection.

He reported marked electrocardiographic changes; i.e., auricular fibrillation, marked intraventricular conduction disturbances, severe coronary insufficiency and injury to the posterior wall of the left ventricle in a 74-year-old male who developed anaphylactic shock to penicillin injection. Bernreiter noted "that the efficacy of the treatment in promptly reversing the electrocardiogram abnormalities strongly suggest that the myocardium and the coronary circulation are capable of participating directly in anaphylaxis and that sudden death during such reaction may be explained on this basis."

That cardiovascular collapse and eventual arrest occurs with numerous other drug reactions and in other allergic reactions such as bee stings and reactions to horse serum is well recognized. However, the picture is usually that of anaphylactic shock with circulatory collapse preceding cardiac arrest and usually responds to vigorous counteractive measures (antihistamines, adrenalin and fluid replacement). It is quite probable that with the advent of closed cardiac massage, supportive measures to assist cardiac activity may be in such instances life-saving.

Cardiac arrest associated with minor surgical procedures and diagnostic procedures: It has correctly been stated that there is "no such thing as a minor surgical procedure" because of the occasional fatal outcome of such procedures. Stevenson reports 65 cases of cardiac arrest reported to the Cardiac Arrest Registry as being associated with routine tonsillectomy and adenoidectomy. A number of case reports of cardiac arrest occurring with tonsillectomy and adenoidectomy have been reported in recent literature. Cardiac arrest has been reported to occur with a number of diagnostic procedures including bronchoscopy, esophagoscopy, bronchography, gastroscopy and sternal marrow aspiration.

Cardiac arrest associated with sudden respiratory obstruction: In most reports hypoxia and hypercardia are indicated as prime factors in the etiology of cardiac arrest; however there exists considerable controversy on this subject. Regardless of the etiology a number of cases of cardiac arrest have been reported to occur in association with acute respiratory obstruction; a few of the cases are cited here.

Stahlgren and Angelchik report a case of cardiac arrest associated with respiratory obstruction following aspiration of vomiting during a convulsion. Tocker reports cardiac arrest occurring at the time of tracheotomy in a 22-year-old male with obstructed airways from a gunshot wound in the neck. Peabody reports cardiac asystole in an 18-month-old male associated with acute laryngeal obstruction due to severe laryngotracheobronchitis. A case is reported of cardiac arrest occurring at the time of tracheostomy

in a 60-year-old man with a large bleeding pharyngeal tumor producing respiratory obstruction. Several authors report cardiac arrest occurring after or during an episode of laryngospasm.

Three cases are cited in which cardiac arrest occurred at the time of tracheobronchial suction. One was a seven-year-old child with acute laryngotracheobronchitis. Another was a three-year-old child with croup who developed arrest during suction of the tracheotomy tube. The last case was a two-year-old girl with epiglottitis with croup who developed cardiac arrest during bronchoscopy and tracheal suction.

Williams and Spencer report a case of cardiac arrest in a nine-year-old girl with severe bronchial asthma treated successfully by cardiac massage and hypothermia.

Cardiac arrest associated with electrocution: The usual mechanism of death in electrocution is postulated to be ventricular fibrillation.

Stevenson reports that electrocution accounts for approximately 1,800 cases of death each year in the United States. They report only one case in which the heart has been resuscitated following arrest due to electrocution.

Turk and Glenn report an unsuccessful attempt to resuscitate a 34-year-old individual following electrocution.

There has been a recent case report of successful resuscitation following electrocution and cardiac arrest due to lightning in a ten-year-old boy. The heart was found to be in asystole but it responded to manual massage and intracardiac epinephrine. Neurologic damage in this case was prevented by the use of hypothermia, overventilation, respiratory alkalosis and the intravenous use of urea. It is possible in this case that cardiac arrest followed respiratory failure and did not occur at the time of electrocution.

Electrocution accidents in the usually otherwise well individual would appear to be the ideal case for the "educated bystander" to apply the described closed cardiac massage along with artificial respiration.

Cardiac arrest associated with oversedation and poisoning: Stahlgren and Angelchik list "oversedation and poisoning" as two of the specific indications for cardiac massage in the accident ward.

No case reports were found of attempted cardiac massage in cases of oversedation. Circulatory depression and shock requiring pressor amines is indicated as the usual event in barbiturate overdosage. It is not known whether or not death in certain instances of oversedation can be prevented or recovery speeded by use of such methods as closed-cardiac massage. If the situation should arise there should be no hesitation in its application, however not to the exclusion

of the other more recognized means of supportive treatment.

In a recent review of the more common poisonings the terms circulatory failure and cardiovascular failure appeared repeatedly. However, no specific cases of cardiac arrest were cited in which cardiac massage was attempted or mentioned as being indicated. Again it is not known whether the timely application of cardiac resuscitation measures could be of value in such cases.

In the case of poisoning due to overdose of cardiac medication (digitalis, quinidine, procaine amide) in which various arrhythmias and death are known to occur, certainly cardiac resuscitation would be indicated.

Cardiac arrest associated with drowning: In this country and in Britain drowning comes third in the causes of fatal accidents. The principal cause of death in fresh water drowning is the occurrence of ventricular fibrillation. Fresh water is more lethal than salt water because after the inspiration of fresh water into the lungs there is a rapid absorption across the alveolo-capillary membrane. This results in hemolysis, potassium release from the erythrocytes, and upset of the electrolyte ratio all of which together with the anoxia sends the ventricles into fibrillation.

In salt water drowning the electrolyte concentration of the inhaled fluid is greater than that of the blood. In dogs there is a hemoconcentration; ventricular fibrillation does not occur and the heart fails gradually in five to eight minutes. Respiratory failure commonly precedes cardiac failure, and in the interval between respiratory and heart failure artificial respiration is life saving.

There are no known reported cases of attempts at cardiac massage in the drowning victim. Its value remains to be determined.

Cardiac arrest associated with electrolyte disturbances: In the textbook description the heart stops in diastole in hyperkalemia and in systole in hypokalemia. Certainly the cardiac effects of hyperkalemia in such clinical situations as "acute renal failure" are in general well appreciated. The role of potassium in drowning victims has already been described. Recent reports are indicating the importance of potassium changes in regard to cardiac arrest in other clinical situations.

LeVeen and co-workers in studying the possible causes of cardiac arrest felt that 50 out of 157 cases of cardiac arrest could be attributed solely to massive blood transfusion. They pointed out that in the course of blood storage for 15 days the level of extra-cellular potassium rises from five to 25 mEq. per liter. LeVeen postulates that the critical factor is the ratio of potassium to calcium in the venous blood returned to the heart. Should this ratio become excessively large

cardiac arrest will occur. Citrate entering and combining with serum calcium in venous blood also contributes to increase this ratio. To alleviate the above problem the author suggests (a) the injection of calcium salts intravenously; (b) use of fresh blood when massive transfusions are needed.

Several reports have appeared in the literature regarding the role of potassium in cardiac arrhythmias in the immediate post-hypercapnia period. It has been shown that in this period there is a sharp increase in the plasma potassium level. This has been postulated as a mechanism for cardiac arrest occurring immediately following anesthesia and surgical procedures at which time the patient is rapidly ventilated with a high concentration of oxygen.

Cardiac arrest associated with trauma: McCarthy in his discussion of the problem of cardiac arrest discusses trauma as a cause of cardiac arrest and notes that Wiggers describes the onset of ventricular fibrillation by direct injury to the heart. This may be produced by external trauma as well as in intrathoracic surgery.

Williams and Spencer describe two cases of cardiac arrest occurring with direct cardiac trauma successfully resuscitated by open cardiac massage followed by hypothermia.

With the large volume of trauma seen daily by the medical profession the role that cardiac resuscitation can play in preventing death from such accidents depends upon the physician's early recognition and prompt treatment of cardiac arrest in such cases.

Cardiac arrest associated with complete heart block (Stokes-Adams syndrome): The syncopal episodes associated with Stokes-Adams attacks have long been recognized as due to episodes of circulatory arrest. They are completely unpredictable and a fatal attack is always imminent. These episodes of circulatory arrest are due to ventricular standstill, tachycardia, or fibrillation.

The use of an external cardiac pacemaker has been advocated in these patients and there are recent and continued developments in this field.

Several attempts at cardiac resuscitation in Stokes-Adams disease patients have been reported. Turk and Glenn reported an attempt of open cardiac massage on a 74-year-old man with history of Stokes-Adams attacks. Stahlgren and Angelchik report an attempt in a 54-year-old individual. The patient was resuscitated but died 48 hours later with massive neurologic damage.

Kouwenhoven's method of external defibrillation was used successfully ten times in four days in a 72-year-old man with Stokes-Adams disease. After the tenth defibrillation the heart remained in standstill and the patient died. Closed chest cardiac massage had not been developed at that time.

The closed cardiac massage and external defibrillation method remains to be used effectively on this group of individuals, but theoretically if the method could be taught to those associated with such individuals the possibility exists of increasing their longevity. Particularly with recent advances in the area of "pocket pacemakers" a brighter future exists for these individuals.

Cardiac arrest associated with obstetrical and neonatal cases: Gold recently reviewed the subject of cardiac arrest in obstetrics. The following statistics were tabulated: obstetric cardiac arrest incidence 1:70,787 live births or 1:79,772 deliveries. During the six years studied cardiac arrest was the cause of death in 1:44 maternal deaths.

McBurney in 1957 reported a case of cardiac arrest occurring at the time of delivery of the placenta; the patient was treated successfully by open cardiac massage.

Galos and Surks reported two cases of cardiorespiratory resuscitation in newborn infants. The infants were presumably born "dead" as a result of anoxia from rupture of the uterus just prior to and during delivery. Both infants were treated by thoracotomy and cardiac massage within five minutes after birth when conventional resuscitative methods had failed. One infant survived 36 hours; the other infant was alive and well after 13½ months follow-up.

Rather and Herron reported a case of neonatal cardiac resuscitation after delivery was delayed due to shoulder dystocia.

Lore *et al.* report a case of successful use of hypothermia following cardiac arrest and resuscitation during surgery for a bilateral harelip in a 12-day-old infant.

Miscellaneous cases of cardiac arrest: A number of isolated cases of cardiac arrest have been reported; a few of interest will be cited here.

Brown and colleagues report an interesting case of cardiac arrest in a 24-year-old x-ray technician while at work. He was treated by pen knife thoracotomy. After 2¼ hours, ventricular fibrillation was abolished by producing cardiac standstill with 3½ cc. of 14 per cent KCl. A postoperative electrocardiogram showed probable Wolf-Parkinson-White syndrome. The patient made an uneventful recovery.

Stahlgren and Angelchik report a case of cardiac arrest following insulin shock therapy in a 29-year-old patient with the diagnosis of schizophrenia.

Harvey and Levine postulated a mechanism of death from fright by demonstrating with electrocardiogram tracing paroxysmal ventricular tachycardia due to emotional upset. They suggest that the next step following ventricular tachycardia could well be fibrillation and death.

Advantages and Disadvantages of Closed Chest Cardiac Massage

Because the recent development of closed cardiac massage and external defibrillation has carried cardiac resuscitation into many clinical situations arising in general practice, it seems fitting to close this discussion by considering some of the advantages and disadvantages of closed cardiac massage.

1. Advantages:

a. No equipment and less training is necessary to apply the method. It may possibly be applied successfully by individuals other than physicians.

b. It has been proposed that this technique may be readily applied in situations in which open massage can rarely be used such as drowning and electrical shock victims.

c. It may be applied with less delay and without hesitation when the diagnosis of cardiac arrest is uncertain.

d. It has been proposed that maintaining the intact chest wall and therefore the negative intrathoracic pressure enhances venous return and therefore cardiac output during massage.

e. There are fewer complications of resuscitation and post-resuscitation associated with open massage, such as lung and cardiac laceration, traumatic hemorrhagic pericarditis, hydro and pneumothorax, and wound infections.

2. Disadvantages:

a. The closed method is not as well proven from the standpoint of clinical and experimental data.

b. The heart is not directly visualized and therefore one cannot tell exactly what it is doing.

c. The aorta cannot be clamped temporarily as in open massage in an effort to increase cerebral and coronary blood flow.

The final evaluation of closed chest cardiac massage must await further experimental and clinical trial. Early reports are quite favorable and its simplicity is quite appealing. It is presented not to supplant open cardiac massage in the operating room situation. However, in most of the previously outlined clinical situations, it may be used with more proficiency, with fewer complications, and with less delay by the general practitioner than could open massage.

Summary

It was pointed out that there has been a growing interest and a number of new developments in the field of cardiac arrest and resuscitation. Of particular interest is the development of a method of closed-chest cardiac massage and external defibrillation.

The instances and the area of medicine in which

clinical situations where cardiac resuscitatory measures have been used successfully have widened rapidly in the past few years, particularly into the areas of general medicine and general practice. There seems to be a need for increased awareness of, understanding of, and preparation for such situations on the part of the general physician. No report or review directly relating to this subject exists in the available literature.

The diagnosis of cardiac arrest, criteria for application of resuscitation measures, methodology of cardiac resuscitation (with special emphasis on closed chest cardiac massage) and the use of drugs and ancillary measures in cardiac arrest have been discussed. In addition, a special review of the literature has been attempted to establish the clinical situations arising in general practice in which cardiac arrest most often occurs.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.

Infected Abdominal Wounds

(Continued from page 387)

Case 3

This 76-year-old woman was admitted with intestinal obstruction which proved to be adenocarcinoma of the rectum. On February 12, 1962, a transverse colostomy was done. Nine days later a resection was performed via a left para-median incision. The permanent colostomy was placed in the lower, left quadrant. The temporary colostomy in the transverse colon was closed. On the seventh postoperative day purulent drainage was noted from the site of the colostomy closure. A single silk was removed to permit introduction of a 50 mg. tablet of Furadantin.

The following day (eighth postoperative) a large quantity of foul smelling, bloody pus drained out of the lower end of the main operative wound. The lowermost silk sutures were removed to permit insertion of a 100 mg. tablet of Furadantin into the abscess cavity.

In the meantime the purulent drainage from the colostomy closure had changed to a watery liquid, stained yellow by the medication. In the next 24 hours there was the same dramatic change in the character of the drainage from the main incision. It became watery, almost colorless and odorless. Four days later there was no drainage from either wound. All skin silks were removed. The wounds remained well healed.

This is a series of only three cases, but the response within 24 hours in each case was so remarkable that we thought others might like to try the same procedure.

Security in Maturity

(Continued from page 386)

others with diseases of the central nervous system. Some types of cancer require long term care because of general physical disability. Finally we have those whom the uneven ravages of time and fate have rendered physical or mental derelicts, or both, that require custodial care, sometimes for prolonged periods of time.

Senior couples in good health and with adequate means present no problem. It is only when the means becomes inadequate and the oldster becomes ill, or lonely, that a problem exists. A few poor, sick, lonely oldsters would not be much of a problem but when you have a lot of them and the number is increasing at the rate of 57,500 a year we should sit up and take notice.

THE BEST DRUGS ARE YET TO COME

There is no question that in the United States, it has been the pharmaceutical companies who have done the major research work in the discovery and the initial testing of the drugs we call the tranquilizers. I think we owe a great debt of gratitude to those companies for this research job. I have the impression that when this whole concept of the treatment of mental illness by drugs was begun, had the control of it, and particularly the "efficacy" of these drugs been a matter of jurisdiction by the federal government, my guess is we would not have had them. I think it was the competitive research activities among the drug houses that led to these—and fortunately for all of us in this field, still continues. My conviction is that the best of the drugs is probably yet to come, and the chances are good that it will come out of the research, the competitive research if you will, among the drug houses.—William C. Menninger, M.D., The Menninger Foundation, to Senate Subcommittee on Antitrust and Monopoly.

The President's Message

DEAR DOCTOR:

The drug, thalidomide, has dramatically registered itself in pharmaceutical history. The danger associated with its use was unheralded until administered to pregnant women and phocomelia resulted.

This sad condition reminds each of us as physicians of our duty and obligation in the administration of new drugs. The results of the clinical investigation and the indications for a new drug must be perused. The patient must be observed and questioned for any untoward symptoms and signs resulting from its action. If we find that there are problems in connection with a given drug it is our responsibility to report these findings to our colleagues and the pharmaceutical manufacturer.

We will continue to have more new drugs which will benefit mankind if we accept our responsibility in this area. The final value of a given drug can be ascertained by wide usage. Our governmental bodies aid in this, but they are still composed of men and women who do not have the benefit of the wide experience that is developed through general utilization of a drug.

The isolated and unusual case must be reported so that the knowledge and truth concerning a drug's behavior may be known and when the incidence of unfavorable action outweighs its effective action this knowledge must be publicized to the profession.



Norton L. Francis M.D.

President



Editorial COMMENT

(Several recent inquiries concerning legal implications incident to artificial insemination were answered in the following statement from Mr. Kirke W. Dale, attorney for the Kansas Medical Society.—Editor)

Reference is made to your letter of July 24 pertaining to the legality and propriety of performing an artificial insemination by a Kansas doctor on one of his patients.

The matter is one of first impression in Kansas and we find no statute or decision directly or indirectly covering the specific question. However, recent literature indicates that more and more physicians are being asked to perform, and are performing, artificial insemination procedures.

There are two types of procedures involved. If the semen of the woman's husband is used the procedure is known as A. I. H. (Artificial Insemination Homologous); if the semen of some other man is used it is known as A. I. D. (Artificial Insemination Donor). In all probability A. I. H. poses few, if any legal problems, inasmuch as the child is actually their biological offspring. A New York case held that "'A. I. H.' is not contrary to public policy and good morals and does not present any difficulty from the legal point of view." But of "A. I. D." the court said, "Heterologous Artificial Insemination . . . with or without the consent of the husband, is contrary to public policy and good morals, and constitutes adultery on the part of the mother. A child so conceived is not a child born in wedlock and therefore illegitimate. As such, it is the child of the mother and the father has no right or interest in said child."

In a similar New York case, a child resulting from "A. I. D." which had been performed with the consent of the husband was held not to be illegitimate, and the husband was given the right of visitation. It was stated, as dictum, in a Canadian divorce case, that artificial insemination, without the consent of the husband, is adultery on the part of the wife.

The problems of legitimacy, inheritance, etc., pri-

marily concern the parents and the offspring rather than the physician who performed the artificial insemination. The performance of artificial insemination does, however, create hazards for the physician which necessitate an adequate agreement between him and his patient.

As in the case with other medical procedures, the physician cannot free himself from the obligation to use due care and skill in the performance of the procedure itself and he faces the possibility of a malpractice action if he is negligent.

The agreement with the parties should cover the points set forth below: (1) the wife should consent in writing to the procedure, because otherwise its accomplishment would constitute an assault and battery; (2) the written consent of the husband should be obtained because the procedure seriously affects and involves the marital relationship; (3) the donor should consent in writing to the unrestricted use of the semen he supplies and should certify that he will make no effort to ascertain the identity of the husband and wife involved; (4) although the possibility of suit by her is remote, the written consent of the donor's wife, if the donor is married, to the giving of the semen may also be desirable, inasmuch as her marital interests are affected; (5) the physician should have permission to use his own best judgment in selecting the outside donor, and the law has not as yet delineated the responsibilities of the physician on this score, but it would seem that he would be obligated to use reasonable care in selecting a healthy donor who has no known transmissible disease.

There are certain other desirable precautions which the physician should observe. The physician should establish to his own satisfaction that, from the medical point of view, the husband is sterile. Where possible, the semen used should be "pooled" and include semen of the husband and donor. The use of such "pooled" specimen would give rise to the legal possibility that the husband was the father or, at least, it would make it more difficult to prove that

he was not the father where the donor is of the same blood group. The physician should make certain that the identity of the donor is kept from the wife and husband and their identity kept from the donor. However, the physician should have a record, preferably in code form and open only to himself, of the identities of the donor and the husband and wife, in the event such information later becomes necessary in defending litigation.

I must strongly emphasize that obtaining the consent and observing the precautions mentioned above may have a bearing only upon the physician's civil responsibilities. No court decisions and no statutes have as yet spelled out any criminal aspects of artificial insemination. If the procedure should be held to be a criminal offense, in all probability, it would be the physician rather than the donor who would be regarded as the guilty party. The donor has no control over the use of the semen; it is the physician who, by his own voluntary act, has actually interfered with the wife's reproductive faculties and caused the birth of any child that may result. If the performance of artificial insemination should be held to be a criminal offense, the fact that the patient consented may not be a defense to the physician, because it has generally been held that consent to perform a criminal act is a nullity.

Since neither the courts nor the legislature has as yet spelled out the physician's civil or criminal position with respect to the performance of artificial insemination, he should be insistent upon the greatest possible protection and should preserve adequate records in the event that any difficulties arise.

The above is a general observation upon the medico-legal aspects of the question posed and is my opinion as gleaned from the material presently available.

New Social Security Bill

A bill was introduced by Senators Anderson and Javits which is expected to be the basic social security health care proposal in the next Congress. . . . Known as S. 3565, it contains these basic features:

Eligibility is liberalized by covering all individuals over age 65. Payment would be authorized for the following services:

Up to 90 days of "inpatient hospitalization" in semi-private accommodations subject to a deductible of \$10 for each of the first nine days of hospitalization with a minimum deductible of \$20.

Up to 180 days of "skilled nursing facility services" but the combined inpatient hospital services and skilled nursing facility services would not exceed 150 units of services furnished during a "benefit period." (A unit of service would be

equal to one day of inpatient hospital services or two days of nursing facility services.)

"Home health services" up to a maximum of 240 visits during a calendar year.

"Outpatient diagnostic services" during the first 30 days of a benefit period subject to a deductible of \$20.

Drugs and biologicals would include those which are included in U. S. Pharmacopeia, National Formulary, New and Non-Official Drugs or Accepted Dental Remedies, or are approved by the Pharmacy and Drug Therapeutics Committee of the medical staff of the hospital furnishing the drugs.

Payment for services would be based on the "reasonable cost" of services. The Secretary would prescribe, in regulations, methods for determining the cost.

Any individual entitled to payments under the bill would be given the election to have payments for authorized services made to an eligible insurance carrier under an approved plan, instead of for payment made directly to the providers of services. The individual and the carrier would be required to meet certain requirements.

The program would be financed by increasing the social security tax and the tax base. Benefits for those not covered by social security would be paid out of general revenues.

Thalidomide

The following telegram was received with the request that the message be transmitted to the members of the Kansas Medical Society.

"Persistent press pressure in certain areas demands names of physicians conducting clinical trial with Thalidomide. Merrell cannot violate traditional confidential relationships with drug investigators by making their names public. Merrell supplied names to Food and Drug Administration April 1962 and names have been released from Washington to state and local public health offices.

"First word of a possible effect of Thalidomide on the unborn child reached us by cable from Germany late November 29, nearly three years after trials began in this country. Within hours we notified the Food and Drug Administration and shortly afterwards doctors active in the program. We have offered our scientific resources and cooperation to the FDA, the American Medical Association and to other scientists working on this problem. Today, July 30, the AMA Council on Drugs announced it will undertake a comprehensive analysis of the problem. Merrell is cooperating 100 per cent with the Council.

"We do not minimize possibility that Thalidomide

(Continued on page 405)



Personalities—IN KANSAS MEDICINE

Dr. and Mrs. Frank A. Trump, Ottawa, recently returned from a trip to the Orient where Dr. Trump participated in a postgraduate course offered by the University of California Medical School. He studied in Japan and Hong Kong and toured hospitals in the Philippines. They also visited in Hawaii on their return trip.

Bill Gardner, Winfield, has completed a year of special work in surgery at the Kansas University School of Medicine and has returned to Winfield to practice.

Certification to the American College of Chest Physicians has been awarded **W. A. Smiley, Jr.**, Goodland. The announcement was made in July.

The Garnett Chamber of Commerce has chosen **Ralph E. White** as outstanding citizen of the community and Anderson County. Dr. White is active in many civic affairs, especially the Boy Scouts and the Lake Garnett Sports Car Race Association.

C. B. Grissom, retired Syracuse physician, will be honored for his more than 40 years of service to the area on September 28, which has been set aside as "Dr. Grissom Day" by the community.

L. L. Bresette, Kansas City, has been elected president of the State Board of Healing Arts. **Francis J. Nash**, also of Kansas City, was re-elected secretary.

The necessity of stressing individuality when raising twins was pointed out by **James W. Newmann** in his talk before the Twins Mothers Club in Garden City in July.

Ray Meidinger, Hiawatha, has announced that Robert G. Laffoon will be associated with him in the practice of medicine and surgery. Dr. Laffoon is a graduate of the University of Missouri School of Medicine and comes to Hiawatha following a one-year residency at a hospital in Lafayette, Louisiana.

John K. Griffith has moved from Winfield to Neodesha where he has assumed the practice and purchased the building and equipment of **Glen McCray** who has entered residency training in psychiatry at the Kansas University Medical Center.

Richard Carleton recently moved to Colby and is now practicing medicine and surgery with **Harry Custer**. Dr. Carleton recently completed residency at St. Francis hospital in Wichita.

The Clay County Medical Society honored **George W. Bale**, Clay Center, with a dinner in June. Dr. Bale has been a physician in Clay Center for 52 years.

John K. Fulton, Wichita, has been elected Governor of the Kansas Chapter by the American College of Chest Physicians. The election was held during the annual meeting in Chicago in June.

Cyril V. Black, Pratt, was one of the physicians who participated in a scientific exhibit at the recent A.M.A. meeting in Chicago. The exhibit was "The Management of Leg Cramps in Pregnancy."

David Lukens, Hutchinson, was admitted to full fellowship of the American College of Physicians in April.



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

DIFFICULT DECISION

A doctor's plea, at the American Medical Association's meeting, for physicians to leave hopeless, suffering, dying patients to God's will, is a challenge to the courage of all of us.

It is all well and good to say that doctors should decide when to abandon the fight for life, and to let nature take its course. But that is an intolerable burden to place on the doctor alone.

His instinct is to fight as long as he can—with drugs, surgery, fluids, tubes and oxygen—to save his patient. To do any less, often subjects him to criticism from relatives or colleagues. But in pursuing his fight, beyond all limits of medical practicality, he finds himself inflicting terrible suffering on his patient and physical, emotional and financial havoc on the family.

A decision clearly is called for at some stage in the battle when it can still be made rationally. The doctor, of course, is the medical expert whose estimates of the case carry the most weight. But the patient also should be listened to, and the family, guided by advice from their clergymen should assume some responsibility for the decision.

The physician deserves all the support he can be given in such a difficult situation.—*Chanute Tribune*, July 3, 1962.

THE DOCTOR'S IMAGE

As an individual, the physician is highly esteemed by his patients. It is not going too far to say that the family doctor is often loved.

But as a group, members of the medical profession do not enjoy the best of public images. They know it and are worried by it.

Why the whole should be less than the sum of the

parts in this instance is a paradox I can't quite fathom.

Perhaps the reason lies in the difference between the doctor by the bedside and the doctor on the podium. In the first, he seems sympathetic; in the second, he seems pompous and dictatorial. Statues always attract the birds.

The image of the doctors as a group certainly has not been helped by the Saskatchewan physicians who left their operating tables and consulting rooms to protest a compulsory medical care program.

Nor has it been helped by the Viennese doctors who went on strike for higher fees.

Perhaps the Canadian provincial program is unfair. Perhaps government fees in Vienna are too low. This makes little difference to people gnawed by the worry they will be unable to afford care in the event of grievous sickness or accident.

Today's physician is the product of a double investment. The doctor must spend long years in study and training. And the people through their government must spend millions for the medical schools and hospitals. It is a cooperative venture from which all participants expect a personal return.

If this were thoroughly understood, it might be easier to develop a workable and fair plan of medical care on a cooperative basis, and for the medical profession to improve vastly its public image.—*Salina Journal*, July 10, 1962.

The spirit of liberty is the spirit of Him who nearly 2,000 years ago taught mankind the lesson it has never learned, but never quite forgotten.—*Judge Learned Hand*

From the Stacks

State Medical Library

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RECENT ACQUISITIONS

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Books and periodicals will be sent anywhere in the state. You pay only the postage, four cents for the first pound and one cent for each additional pound.



Book REVIEWS

ATLAS OF CLINICAL ENDOCRINOLOGY,
H. Lissner and Roberto F. Escamilla. C. V. Mosby
Company, St. Louis, 1962. 489 pages, \$23.00.

This is the second edition of a volume originally published in 1955, and revised to keep up to date in a field where rapid medical progress has been made recently. A great portion of the book is devoted to photographs or drawings with quite extensive legends presenting significant clinical findings in specific cases. Examples of practically every conceivable disorder of the glands of internal secretion are presented, with the single (deliberate) exception of diabetes mellitus. Each entity is discussed, also, in text material which is very concise, with an almost telegraphic style. An amazing amount of information is contained in this material. No attempt is made to discuss theory or physiologic background of the disorders reported.

The printing is excellent. The reproduction of the photographs is of first-class quality and the photography itself is obviously good though some of the older figures are not so clear. A minimum of typographic errors were noted. It is regrettable that only three of the 156 plates are in color since many of the illustrations would be considerably more useful were color to be used. From time to time, various laboratory procedures are given in outdated or varying units, no doubt because the material presented has been accumulated over a number of years. An Appendix summarizes currently used laboratory procedures in endocrine diagnosis, however. From time to time, there is variation in terms used to refer to the same thing (*ie*, pituitary and hypophysis, hypokalemia and hypopotassemia) which might be confusing. As is frequently the case, the authors' enthusiasm for this subject sometimes leads them to ascribe various clinical findings to endocrine disorder which are probably not really connected at all. The most outstanding example of this is in Plate 128, where obesity is attributed to ovarian deficiency in a woman who delivered six children.

All in all, this is an excellent book and should prove of value to anyone concerned with clinical

endocrinology. It would be very helpful to the medical student and equally useful to the practitioner who wants a quick, reliable reference when problems present themselves in the office. Sufficient bibliographic material is given to provide further information where it is needed, but the physician will find very little of practical importance in recognizing and treating these patients that is not covered, at least briefly, in this volume.—J.E.S.

HYPERTENSION: RECENT ADVANCES.
Albert N. Brest, M.D. and John H. Moyer, M.D.,
Lea and Febiger, Philadelphia, 1961. 660 pages.

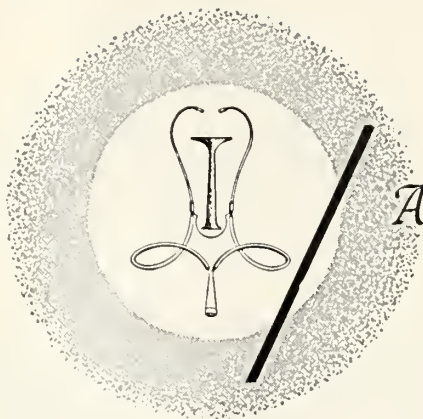
Whatever may be the reason for or significance of the practice, it has become popular to hold "symposia" or "colloquia" on sundry scientific subjects and to publish the proceedings in book form. As could be predicted, books that are the product of this presumably easy method of multiple authorship are all too often distinguished by their mediocrity or triviality. Such is not the case with *Hypertension: Recent Advances* which contains papers given at the Second Hahnemann Symposium on Hypertensive Disease in May, 1961.

An amazing amount of important theoretical and clinical material is summarized in the 86 papers presented. Many of them summarize work done over the years by outstanding investigators. These investigators, having been given an opportunity to synthesize their work, have pulled together the strands of their own experimental work and correlated it with that of others. The result is that we have, between the covers of one book, articles that crystallize for us a great deal of the experimental work in the field of hypertension, and that do it—excellently for the most part—in an average of three or four pages each.

In addition to the papers are the transcripts of about a dozen "discussions" in which the speakers at the symposium talk over the topics that have been covered in the preceding papers.

The articles are grouped into seven sections: (1)

(Continued on page 405)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

A course on principles of epidemiology for physicians, nurses, engineers, sanitarians, administrators, laboratory personnel, educators and all other members of the public health team will be presented at the National Guard Armory, 18th Street, Kansas City, Kansas, September 24-28. The course is sponsored by the Kansas State Board of Health and Kansas City-Wyandotte County Department of Health. There is no charge for this training or for materials distributed in the course. For complete information regarding enrollment contact Mrs. Virginia P. Lockhart, Chairman, Advisory Committee on Training, Division of Health Education Services, Kansas State Board of Health, Topeka, Kansas.

Kansas Chapter of the Arthritis and Rheumatism Foundation has set Sunday, October 14, for the Second Annual Arthritis Conference for Kansas physicians.

The one-day conference will be held at the Sedgwick County Medical Society Building, 1102 S. Hillside, Wichita, Kansas, according to Dr. George Milbank, chairman of the Medical and Scientific Committee.

Lecturers for the conference will be Dr. Homer B. Ventner and Dr. Paul J. Bilka, of the University of Minnesota Hospitals, Minneapolis, Minnesota.

Deadline for conference registration has been set for October 8, Dr. Milbank said.

The annual conference is one of the medical educational projects included in the year-round program of the Kansas Chapter, according to Dr. Harry J. Wisner, conference chairman.

The conference, open to all physicians in the state, will deal with juvenile rheumatoid arthritis and physical diagnosis of rheumatic diseases.

Two postgraduate courses dealing with the major complexities and advances in internal medicine

will be presented October 1-5 by The American College of Physicians in Portland, Oregon, and Richmond, Virginia.

Course No. 1, of a series of 15 to be offered during 1962-63, will be held at the University of Oregon Medical School, Portland, Oregon. Titled "Difficult Contemporary Problems in Internal Medicine." It will be co-directed by Howard P. Lewis, M.D., F.A.C.P., Professor and Head, Department of Medicine, University of Oregon Medical School, and Daniel H. Labby, M.D., F.A.C.P., Professor and Head Department of Metabolism, Nutrition and Diabetes, University of Oregon Medical School. Under their supervision, 38 specialists in internal medicine will lecture on various phases of the specialty, including the cardiovascular system, gastroenterology, and genetics.

Special guest lecturer will be Wesley W. Spink, M.D., F.A.C.P., Minneapolis, Minnesota, Professor of Medicine of the University of Minnesota Medical School and President-Elect of the American College of Physicians, who will speak on infectious diseases.

The second course of the series titled "Basic Mechanisms in Internal Medicine," to be presented at the Medical College of Virginia, Richmond, Virginia, will deal with new and significant advances in internal medicine, with emphasis on the patho-physiologic concept as related to clinical manifestations and the therapy of disease. It will be directed by W. T. Thompson, Jr., M.D., F.A.C.P., Richmond, Virginia, Professor and Chairman, Department of Medicine, Medical College of Virginia, and co-directed by Charles M. Caravati, M.D., F.A.C.P., Richmond, Virginia, Professor of Clinical Medicine, Medical College of Virginia, and Kinloch Nelson, M.D., F.A.C.P., Richmond, Virginia, Professor of Medicine and Director of Continuation Education, Medical College of Virginia.

The A.C.P.'s postgraduate program, now in its twenty-fourth year, was first conceived in 1938 by the

Board of Regents, according to Edward C. Rosenow, Jr., M.D., Philadelphia, Pennsylvania, Executive Director. At that time established physicians had to depend primarily on general meetings and personal research to keep abreast of intricate new advances in their fields.

Dr. Rosenow pointed out that as doctors responded to the idea of intensive depth study of various aspects of internal medicine, the courses were expanded, both in subject matter and the quantity offered. More than 300 have been presented since that time, with an estimated total enrollment of 20,000 specialists, covering such diverse areas of study as medical genetics, neurology, drug therapy, cancer, psychosomatic medicine, cardiology, endocrinology and the internist's role in pre- and post-operative problems.

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology and physiology on November 23-24, 1962, at the Kansas State College of Pittsburg, Pittsburg, Kansas. Satisfactorily completed applications for examination should be submitted at least 30 days prior to date of examination. Application blanks and other information can be obtained from Dr. L. C. Heckert, Secretary of the Kansas Board of Basic Science Examiners, Pittsburg, Kansas.

The Kansas Chapter of the American Academy of General Practice will hold its 12th annual assembly at the Town House Hotel, Kansas City, Kansas, on October 9-10. The morning of the first day will be devoted to registration and a business meeting. Speakers and their topics for the afternoon session will be "Your Medical School," C. Arden Miller, M.D., Dean of the University of Kansas Medical School; and "The Diagnosis, Management and Control of Rheumatic Fever," Robert A. Tidwell, M.D., Clinical Associate Professor, University of Washington School of Medicine, Seattle. Dr. Albert Burke, New York City, will be the banquet speaker, presenting "Ideas in Conflict."

There will be a symposium October 10 on "Emergency, Post and Surgical Care of Trauma." Three papers will be presented at the morning session: "Emergency Care of Trauma," Richard M. Booth, M.D.; "Post Care of Traumatic Conditions," Richard J. Fangman, M.D.; and "Surgical Aspects of Trauma," Jerome P. Murphy, M.D. The three speakers are from Omaha, Nebraska. During the afternoon session, the audience will be divided into three groups with each speaker spending one hour with each group in a round-table discussion.

For more information contact Mr. Gene M. Wilcox, Executive Secretary, Kansas Academy of Gen-

eral Practice, 506 State Bank Building, Winfield, Kansas.

Thalidomide

(Continued from page 399)

may be connected with congenital malformations in some way not now understood. Major part our research effort is devoted to ascertaining what relationship there may be or whether there is indeed such a relationship at all.

"Last March we terminated the clinical program and asked participating doctors to return their drug supplies. Merrell has carried out an extraordinary program to assure that these clinicians return or destroy all test quantities of the drug in their hands. Virtually all Merrell executives and thirty other picked personnel at our headquarters in Cincinnati collaborated in massive effort to reach all physicians by telephone and letter. Merrell field representatives have called on many of the doctors at their offices. We have followed up personal contacts with telegrams and registered letters to get as full an accounting of the disposition of the drug as possible. Merrell representatives have tried to find ways of checking the drug stocks of deceased physicians.

"The heartbreaking tragedy of the malformed babies in Europe reportedly related to the drug Thalidomide has caused deep concern to Merrell people as well as to all other Americans. We know many have feared that a similar tragedy could occur as a result of our clinical testing program with Thalidomide. We now have reason to believe that if there ever was in fact such a danger it is now a slight one.

"These facts supplied for your information with the hope you may allay understandable anxiety in your state by announcement to member physicians.

"JOHN B. CHEWNING, M.D.
The Wm. S. Merrell Co."

Book Reviews

(Continued from page 403)

the natural history of hypertension, (2) etiological mechanisms, (3) atherosclerosis and hypertension, (4) pharmacology, (5) catecholamine metabolism, (6) drugs which affect catecholamine metabolism, and (7) therapeutic considerations. There is, in addition, an index which makes the book even more valuable.

Probably few physicians will be inclined to read all of the papers, but it is difficult to imagine one who would not find many of them both interesting and useful. It is a pleasure to be able to recommend this book to any and all physicians who ever have contact with hypertensive patients.—J.D.R.

The Strange Story of PKU

Kathy and Keith are sister and brother. Both were born with a metabolic fault which nearly doomed both of them to a lifetime of institutional care. Keith was the unlucky one. He appeared completely normal at birth. His condition was not discovered in time to prevent him from becoming retarded. But Kathy got a break. Since Keith's case had alerted his doctor and parents, Kathy was tested for this metabolic deficiency as soon as possible after her birth. The test was positive and effective dietary measures started. Kathy stayed healthy and normal.

The metabolic mistake is called phenylketonuria, or PKU. It is an inherited condition which alters the body's ability to utilize a common and vital food element. This element, if not normally metabolized by body chemistry, breaks down into toxic substances which eventually damage the brain. But if a PKU condition is discovered when a victim is a month old, damage can be avoided by a diet extremely low in the element that the body cannot handle normally.

In California, Missouri, Washington, New York City, and other areas, all newborn infants brought to child health clinics are automatically screened by one of several simple tests.

In some of these clinics each mother hands the baby's soaked diaper to the pediatrician or nurse who wraps it around a paper test strip. The test strip is called "Phenistix." Within a few seconds, the test area of the Phenistix strip will turn greyish blue if the baby is suffering from PKU. The test is 98 per cent accurate and costs only eight cents—well within the pocketbook of any patient.

If the test is positive, the baby is given a milk substitute which is very low in the element which he cannot assimilate—phenylalanine. The synthetic diet is the only foodstuff to be consumed by the infant for the months that ordinarily he would be fed on milk or "formulae." When the infant grows older, in addition to the low-phenylalanine milk, he can eat most fruits and a great variety of vegetables, including carrots, beets, squash, and tomatoes. By the time he enters school he can usually get along without the diet.

Studies on PKU continue, and one mystery is why, in rare cases, untreated sufferers (less than 1/2 per cent) do not become retarded, and another 10 per cent lose only a little of their mental capacity.

PKU is held responsible for one per cent of the 200,000 mentally retarded patients found in institutions. Since the life expectancy of a PKU mental defective is normal and since most victims are institutionalized, the costs of life-long maintenance are computed in the range from \$75,000-\$200,000. Com-

pare this with the costs of detection (8c) and five years of dietary treatment (approximately \$3,500—some states offer free supplies of the synthetic diet to needy facilities).

But the research which conquered PKU has broken the code of other diseases of the PKU type. There are at least 40 other kinds of "inborn errors" of metabolism, and a few are now detectable and thereby treatable: galactosemia, Wilson's disease, and maple syrup disease, for example.

In 1960, there were about five and one-half million Americans with subnormal mentality. Of the four and one-fifth million children born this year, 126,000 may never rise above the intellectual level of a 12-year-old. This year about 26 million dollars will be spent by the government for medical research and vocational education. The largest private grant was over a million dollars, given to the Stanford University Medical School by the Joseph P. Kennedy Foundation.

"The biochemical approach," says the National Association for Retarded Children, "offers the most promising hope of prevention in the field of mental retardation that has yet appeared. Together with the recent discovery of extra chromosomes in mongoloid and other deficient children, it opens a great new door in our efforts to overcome a handicap that extends through recorded history and now afflicts 5,500,000 American men, women, and children."

Speed is still the number one killer on our highways. During 1960, 10,970 persons lost their lives in accidents blamed on speed. More than 1,000,000 were injured.

High heels were invented by a woman who had been kissed on the forehead.—*Christopher Morley*

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BALTHASER A. BRUNGARDT, M.D.

B. A. Brungardt, 74, Salina physician for nearly 50 years, died July 7 at his summer home near Victoria, Kansas.

Dr. Brungardt was born March 14, 1888, at Victoria. He studied English literature at St. Benedict's College and received his Master's Degree in English from Creighton University, Omaha, in 1910. In 1914 he received his degree in medicine from Creighton and began his practice in Salina the next year.

He was a veteran of World War I. As a young physician he brought medical standardization to St. John's hospital, Salina, and later directed the school of nursing there. He was on the staff of both Salina hospitals.

Dr. Brungardt is survived by his wife and 18 children.

FRANCIS S. CAREY, M.D.

Francis S. Carey, 70, Kansas City physician, died July 14 at his home in Kansas City. He had been bedfast and speechless since he was stricken with paralysis five years ago.

Born October 31, 1891, in Schaller, Iowa, Dr. Carey received his degree in medicine from Creighton University in 1913 and interned at St. Margaret's hospital in Kansas City. He served in an evacuation hospital unit during World War I.

Dr. Carey established his medical practice in Kansas City in 1920 and for several years was physician for Wyandotte County, and also physician and surgeon for the Kansas City, Kansas, fire department for 30 years. He was a member of various civic and medical organizations.

Survivors include his wife, one son and two daughters.

WILLIAM J. FEEHAN, M.D.

William J. Feehan, 60, Kansas City, died at Providence hospital on July 19.

Dr. Feehan was born November 2, 1901, at St. Mary's, Kansas, and moved to Kansas City with his family when a young boy. He received his degree of medicine from the Creighton University School of Medicine in 1926 and practiced briefly in Oklahoma before returning to Kansas City.

He was active in many civic organizations and medical associations, and was a Fellow in the International College of Surgeons.

Dr. Feehan is survived by his wife and daughter.

The Kansas Medical Society—1962-1963

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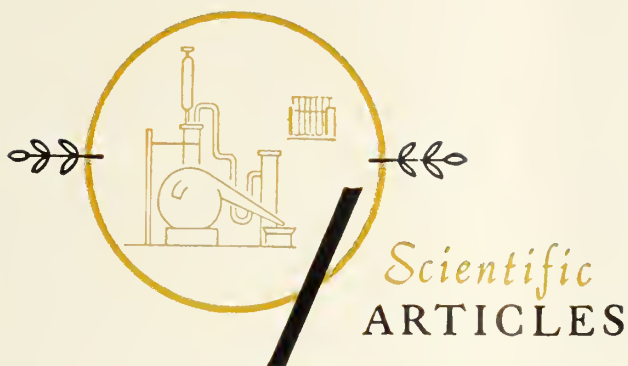
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Medical Practice

The Medical Profession in Costa Rica

CLEVE W. HOWARD, *Wichita**

THIS STUDY WAS DESIGNED to investigate some of the problems and practices of the medical profession in Costa Rica. This subject was of special interest to me, since I am a pre-medical student at the University of Kansas.

Are there some significant differences in the problems and feelings of the medical professions of the two countries, those of the United States and of Costa Rica? A study of day-by-day practical problems of a physician in Costa Rica, such as office hours, hospital duties, financial and social position, should suggest an answer to this question. By personal interviews with various members of each stratum of society, a composite picture of the physician was formed.

The physicians' observations regarding their problems, the legislative controls, the structure of the medical profession and a review of *Seguro Social* necessitated additional and selective interviews within the medical profession. Several general practitioners as well as representatives of specialized fields of medicine, the Dean of the School of Medicine, the Director of the Costa Rican medical society (the *Colegio de Medicos*), and the Director of *Seguro Social* were contacted. In addition it was feasible to study the

governmental laws relating to medicine and the social welfare of the people inasmuch as they concerned the medical profession.

In any country, a "middle class" usually arises with industrialization. In Costa Rica, however, the "middle class" is not based on industrialization but rather, on the professions, on retail businesses, and on small farms held by diversified groups—some rich, some poor, but all land owners. The most significant factor in the rise of the middle class in Costa Rica is, however, the spirit of social equality. This phenomenon, so unexpected in Latin America, makes it possible for practically anyone to feel and act as if he were in the "middle class," regardless of his background or financial circumstances. It is this large group that supports the medical and legal professions. The social and economic changes brought about by the growth of the "middle class" in this Central American nation have affected the medical profession, creating several interesting problems.

One of the more critical problems in the Costa Rican medical profession is the uneven geographic distribution of the physicians. The area of Costa Rica is 19,650 square miles, approximately the size of the state of West Virginia. The population of 1,200,000 is unevenly distributed over the nation with the major concentration in the *meseta central*, the high plateau located in the center of the country. This area is about 30 by 40 miles, and about 500,000 people live there. The distribution of the population partly explains the

* This paper was written and prepared for the University of Kansas as partial fulfillment of the requirements of the second Junior Year Abroad in Costa Rica, the exchange program between the University of Kansas and the University of Costa Rica. The material for this paper was gathered by personal interviews and from literature relating to the problem.

uneven distribution of the physicians. At the present time,* there are 497 medical doctors registered in the *Colegio de Medicos*, and of this number, 340 have their offices in the *meseta central*.¹ Seventy per cent of the physicians are serving only about 40 per cent of the population.

The nation's capital, San José, is located in the plateau and is the center of the cultural advantages and physical comforts of the county. Outside the area of the *meseta central* living conditions, socially, economically or physically are not particularly attractive to professional people, and there are a few cities outside the central plateau that can support a physician.

When one notes the size of the nation and the distances from the back country to the capital, one wonders why the country outside the capital should be considered so isolated. One could surely drive into the city to see a play, hear a concert, or consult others of the profession? This is not so—there are few decent secondary roads, and the one superhighway serves the *meseta central*. A trip of 60 miles could take six to ten hours; or might be impossible during the rainy season. Nor can the people in the back country travel into the capital any more easily than the doctors, perhaps less easily. An example of this problem is one given by an ophthalmologist. He had gone to the town of Gufito in the south part of the nation to check the eyes of the school children. He examined 180 children, those having been selected from 5,000. Some of those examined needed medical attention, but it was necessary that they come to his office in the capital. There is not a railroad. There is no good highway open all year around, and when passable, is only so by jeep. So the person must travel by air. The passage is 110 colones (\$18 U.S.) round trip. But the child cannot come unaccompanied, so the passage is 220 colones. There is the cost of one or two nights lodging and food in the capital, about twenty colones (three dollars) per person per day. This is a rather expensive trip, and many times is put off.

A medical doctor estimated that ten to 15 years ago there were 100 to perhaps 150 physicians in Costa Rica. Most of these had their offices in the *meseta central*, and especially in San José. There are 500 physicians in Costa Rica today, with 340 in the *meseta central*. Census figures indicate that the population has increased since 1950 by about 20 per cent, from 812,000 to 1,099,000 in 1959.² Some rough estimates indicate that ten to 15 years ago, a doctor in the San José area grossed 10,000 to 15,000 colones (\$1,500 to \$2,100 U.S.) per month. Today the average figure in the San José area is around 6,000

colones (\$950 U.S.) per month, about half the monthly gross ten to 15 years ago. The monthly gross will continue to fall as more physicians begin to practice in the San José area. This concentration of medical doctors will have a tendency to force additional practices into other parts of the country in the opinion of practicing physicians.

Considering the cost of goods in Costa Rica, 10,000 colones is a very high monthly income. A car is worth 20,000 to 40,000 colones; a fairly good house, new, is worth around 50,000 colones (\$7,500 U.S.); the food is not expensive; no heavy clothing is required; and there are no high taxes. A domestic servant might earn 110 colones (\$18 U.S.), plus meals, a month; an elementary teacher, 1,000 colones a month; and a manual laborer, 200 colones a month. A physician with a good practice makes considerably above the average income in Costa Rica. The majority of the physicians, however, do not have such a good practice. One medical doctor, whose monthly income is around 5,500 colones (\$830 U.S.) works in the Department of Public Health, works two hours a day for *Seguro Social*, and was in his office six hours a day. In the evenings he did case investigations in his home, making in all some 12 hours a day. As he said, "A doctor can live here very well if he is willing to put in more than eight hours a day like a factory worker."

The medical profession of Costa Rica has a very high social position although there are no fixed classes in Costa Rica. The physicians earn this position by being one of the medical profession. It seems that the medical doctors in Costa Rica are rather active in politics. For example, in the last election, two of the five candidates for presidency were physicians.

The private offices in the San José area are different from the offices here in the U.S. although there are many similarities. Most medical offices in the San José area are in older buildings located in the not-so-fancy parts of the city where the rent is less. The waiting rooms are not over-decorated. There are magazines on the tables and certificates on the walls. The secretary takes your name. You wait. The doctor has to go to the hospital. You wait. He will be back shortly. Meanwhile, you wait. The office hours vary greatly, some from 7:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m.; or 3:00 p.m. to 10:00 p.m.; or 11 o'clock to one o'clock and five o'clock to seven o'clock in the evening. Others are normal, from 8:00 a.m. to 12:00 noon and 2:00 p.m. to 5:30 p.m. The reason for the mixed up hours is that some of the physicians hold other positions, such as a professor in the university, or a doctor in *Seguro Social*, or the physician for the police force.

* August, 1961.

The facilities of most of the hospitals in the nation are available for use by the physicians and their patients. In Costa Rica there is a system of national hospitals as well as private institutions. As of 1960, there were 13 hospitals and 15 rural centers of assistance, and six institutions of specialized medicine in the national system. Under private auspices there were ten hospitals and clinics, four of them in the banana zone under the United Fruit Co. If a doctor has a patient in one of the hospitals, he will visit this patient as often as he deems necessary. In the national hospitals where there is no preference made, the doctor on duty examines the patient.

One almost humorous problem that the physicians face is that people do not hesitate to use a friend's prescription. "If it cured another, it will cure me because I have the same thing," is their reasoning. The pharmacists aid by not requiring a prescription if the person knows the name of the drug. In fact, they may even administer the medicine. This might not be too terrible, but the person could diagnose his case wrong, and not knowing the proper amounts to be taken, destroy the beneficial effects of the medicine. The "patient" might go one step further. He might know two persons who suffered the same disease that he suffers, and each was prescribed different drugs. He reasons that both together will cure him twice as fast. The two drugs might not be compatible, and destroy each other, doing the patient no good whatsoever. Such, however, is the custom in Costa Rica!

To become a physician with the right to practice the profession of medicine within the nation of Costa Rica, a person must fulfill the following requirements. First, he must be graduated from an approved university with the title of Doctor of Medicine. An approved university is determined by the University of Costa Rica, and is dependent upon whether or not the other country has a reciprocal agreement with Costa Rica for the acceptance of university credits. Upon return or entrance into Costa Rica each prospective medical doctor must successfully take an examination dealing with practical and theoretical medicine given by the *Colegio de Medicos*, the national medical association. The applicant then presents himself to the Department of Public Health for service in whatever part of the country the Department deems necessary. These parts are usually the back areas. This "social service" is for one year's time. After the year of service, the physician is required to write an original paper presenting the problems of public health that he encountered during the year. Next comes a year of internship in the hospital system. Persons who have not been residents of the nation for at least five years must do so before they can be eligible to practice medicine. They must also

serve the year of "social service," write the paper, fulfill the year of internship as the others before they can practice where they choose.

Since there was not a school of medicine in Costa Rica until last year, all the medical doctors have received their education in foreign lands. The doctors have attended schools in the United States, Latin America, and Europe. Costa Rica has treaties with the other Central American republics; namely, Nicaragua, Honduras, El Salvador, and Guatemala; and with Spain and Colombia whereby doctors educated or practicing in those countries may enter and practice in Costa Rica without restrictions. The only requirement is that the physician pass the examination of the *Colegio de Medicos* before he is able to practice.

It is interesting to see in what countries the medical doctors of Costa Rica have received their education. Table I shows the numbers of physicians that were graduated from universities in each of the listed countries who were members of the *Colegio de Medicos* in 1960.

The physician who attends a university in the United States receives an education of very high quality. In Costa Rica the education received in the United States gives prestige above that of any other country in the world. The physician also learns English, a great advantage.

Table II shows the number of doctors who, although members of the *Colegio de Medicos*, do not have their practices in Costa Rica. They are listed according to the country in which they received their education. It is of interest to note that a fairly large number of physicians educated in the United States do not now have their practices in Costa Rica. Some 13 per cent of those educated in Spain have not returned permanently to Costa Rica. Those professional men who do not return to Costa Rica are a loss for the nation. At the present this factor is not considered to be too serious since it is counterbalanced by immigration.

All of the physicians wishing to practice in Costa Rica must successfully pass an examination prepared by the *Colegio de Medicos*. This exam is of three parts; the first, a written examination over these fields of medicine: embryology and histology, human anatomy, physiology, therapeutics and materia medica, internal medicine, surgery, pathological anatomy, obstetrics, gynecology, hygiene, and legal medicine. The second part is a practical application of the knowledge, given in the hospital with patients. The third part is an extensive examination based on the subjects of the list presented above.

The physician then serves one year of "social service" in hospitals, other institutions of public assistance or in any of the small health units, at the

TABLE I
EDUCATIONAL BACKGROUND OF
PHYSICIANS IN 1960

<i>Countries in Which Educated</i>	<i>Number of Graduates</i>
MEXICO	176
Univer. Nat'l	160
Others	16
UNITED STATES OF AMERICA	52
SPAIN	39
NICARAGUA	35
BELGIUM	24
EL SALVADOR	23
ITALY	21
ARGENTINA	18
FRANCE	15
COLOMBIA	13
GERMANY	12
CHILE	11
GUATEMALA	7
SWITZERLAND	7
PANAMA	4
CUBA	3
HONDURAS	3
BRAZIL	2
CANADA	2
ENGLAND	2
AUSTRIA	1
DOMINICAN REPUBLIC	1
HUNGARY	1
PERU	1
URUGUAY	1
TOTAL	474

discretion of the Department of Health. In this service, Costa Ricans have priority over foreigners. The reason for this program is to provide some degree of medical assistance to the back areas where there are no medical doctors. Since these areas cannot support a physician, the Department of Public Health pays a salary. The minimum is 600 colones a month (\$90 U.S.), which is increased with respect to rural areas, taking into consideration the sanitary conditions, the population, the existing communications and distance from the centers of population.

In order to carry out this service, the Department of Public Health has established sixty-eight districts in each of which there is a "health unit," or "health station" which is staffed by a physician who may have under his command a nurse, a laboratory technician and several assistants. The physician in charge of the station is responsible for the entire district. He may or may not have other doctors serving their year in his district working under his direction. These other

TABLE II
MEMBERS OF *COLEGIO DE MEDICOS* NOT
PRACTICING IN COSTA RICA ACCORDING
TO COUNTRY IN WHICH EDUCATED

<i>Country</i>	<i>Number of Physicians (as of 1960)</i>
UNITED STATES OF AMERICA	9
MEXICO	7
SPAIN	5
COLOMBIA	3
NICARAGUA	3
BELGIUM	2
FRANCE	2
GERMANY	2
ARGENTINA	1
CUBA	1
EL SALVADOR	1
HONDURAS	1
ITALY	1
PANAMA	1
URUGUAY	1
TOTAL	40

doctors are assigned to their posts by the Department of Public Health. The "health unit" is the center of the preventive activities and of the medical assistance that is to be realized in each district. The fundamental attributes of the "health units" are the following: (a) the study of the sanitary conditions of its jurisdiction; (b) the execution of the programs that solve the problems related to the same; and (c) the medical assistance to the inhabitants that comprise each district when there exists no National Hospital in said area. These "health units" are providing for much of the country a necessary service that might not be achieved in any other way. They are bringing, besides the immediate medical aid, another most important factor: health education.

As with all good programs, however, there is a lack of the necessary funds to carry it to the fullest, most effective degree. The greatest problem is that there is not enough money in the Department to pay the salaries of some of the new medical doctors returning to the nation, and who under the law must serve the year with Public Health.

The physician must complete, in addition, one year of internship in the hospital system. This is usually served in San José in the central hospital, San Juan de Dios. The pay as an intern is 1,200 colones a month (\$180 U.S.). Residencies pay around 1,500 colones a month (\$225 U.S.), but are not required before a doctor may practice.

Upon completion of these two years of service, the physicians receive their certificates of incorporation into the *Colegio de Medicos*. The *Colegio de Medicos* is the organization of physicians of Costa Rica which regulates the practice of medicine. The purpose of the *Colegio* is to maintain the high quality of the medical profession in the nation. To accomplish its goals, the *Colegio* works with the national government and the University. The relation to the government is this: the *Colegio* recommends bills to the legislature. If passed, and if approved by the President of the Republic, the bills become law. The laws of the University of Costa Rica are established by an Assembly to which the *Colegio* sends a representative with one vote.

Without being a member of the *Colegio de Medicos*, no one can practice medicine or surgery or the other branches of the medical sciences. The physicians and surgeons that solicit subscription into the *Colegio* must fulfill the following requirements: (a) Present the title of Doctor of Medicine and Surgeon of the University of Costa Rica, or other approved institutions; (b) Statement of good conduct; (c) Prove that he has resided in the country five years, either before or after completing the studies of Medicine; and (d) Foreigners, besides fulfilling the above requirements, must prove that a Costa Rican may practice in their country under analogous conditions. Since the approval of the *Colegio de Medicos* is required to practice, this organization has great power that can be used against any doctor who does not fulfill his duties properly.

The *Colegio de Medicos* of Costa Rica could be compared to the county medical societies of the United States in that it gives the doctors a unified voice on the political scene, and offers an organ of information, serving both the public and the members. In addition it has a voice in legislation and has the sole power to license physicians. It is not, however, a governmental organ, but an autonomous organization controlled and run by the members.

A physician is subject to the call of the Department of Public Health in the case of an epidemic, serving where he can. He is also obligated to report any case of contagious disease that he may encounter. The Code of Public Health also suggests that physicians advise restaurants and other public establishments in order to better the sanitary conditions. The basic legislation governing the medical profession is to be found in the Sanitary Code of the Department of Public Health and the laws of the *Colegio de Medicos*.

By far the most potentially important influence on the medical profession in Costa Rica is SEGURO SOCIAL. *Seguro Social* is an autonomous institution which was established in 1943. Its responsibility is

to provide workman's compensation and old age benefits for the worker, accident insurance for his family and maternity benefits for his wife. *Seguro Social* is not a governmental agency, nor does it receive the majority of its funds from the government. Several doctors compared *Seguro Social* of Costa Rica with Blue Cross-Blue Shield of the United States. Greatly simplifying the *Seguro Social*, its operation can be explained by saying that the worker contributes two per cent of his total wages, and the employer contributes two and a half per cent. In addition the national government supposedly contributes two per cent of the total wages paid to workers covered by *Seguro Social*. The institution then provides for the worker and his family, workman's compensation, old age benefits and maternity benefits. Today there are around 200,000 Costa Ricans that are insured. The program does not cover self employed persons, domestic help, or persons who earn more than 800 colones monthly (\$119 U.S.).

The physicians that are required to fill the positions in *Seguro Social* are hired by the institution. They are to work a certain number of hours each day, two, four or six, whichever be the case. The examination of patients is done in the national hospitals as well as in those of *Seguro Social*. In addition, a system of house calls has recently been established. During the hours of examination in the hospitals, a physician must examine at least eight patients an hour. If he is to work two hours a day, before he leaves, he must have examined at least 16 patients, even if this involves staying on his own time. He is paid for no more than the number of contracted hours. The wages are 500 colones per month hour (\$75 U.S.). A month hour is one hour each working day for one month.

One of the current problems that *Seguro Social* faces is the lack of money for the hiring of additional physicians, even though there are not enough at the present. Also there is the problem of the government quota which is to be paid to *Seguro Social*. If the government does not pay it, it is not paid and that is that. In the past several years the government has been finding it harder and harder to meet this quota and at present is not paying the full amount. This instability is the reason that *Seguro Social* is planning to become completely independent in its financial affairs.

The future plans of *Seguro Social* are quite ambitious. It hopes to extend its coverage to 80 per cent of the population in the next ten years. This is the reason that *Seguro Social* has, and will have, such a great effect on the medical profession in Costa Rica. Eighty per cent of the population receiving medical benefits through *Seguro Social* will certainly produce some changes in the existing structure of private

practice. Some physicians say that *Seguro Social* will virtually eliminate the private offices; others say that this is not so. All agree that *Seguro Social* will extend its coverage to a large majority of the population. Those feeling that the private practice cannot continue on the wide scale as it does at the present, claim that the 20 per cent not covered in ten years cannot possibly support the large number of physicians, and that *Seguro Social* will be able to use all doctors willing to be part of the institution, thereby absorbing most of the physicians of the nation.

In the minds of the physicians of the nation, the extension of the *Seguro Social* is a form of "socialized medicine," but as they point out, *Seguro Social* is not part of the government. For them the thought of "socialized medicine" does not carry greatly unfavorable connotations. Physicians in general are in favor of the extension of *Seguro Social*. It will greatly benefit the nation, and is a reform that many workers favor.

In making guesses as to what will happen in respect to the medical profession in Costa Rica in the next ten or 15 years, there are three factors of major importance, barring drastic changes in the entire governmental or world-wide situation.

There is a factor that is so big that it may completely upset any plans of *Seguro Social* and put a severe strain on the medical profession. This is the booming population increase in Costa Rica. The per cent of increase in Costa Rica was the highest in the world in 1960, a 52 persons per thousand increase, or 5.2 per cent per year. It is interesting to note the projections of the population over the next two decades.

POPULATION OF COSTA RICA, 1960-1980

Years	Total Population
1960	1,165,602
1965	1,406,238
1970	1,691,359
1975	2,036,133
1980	2,472,854

A more recent estimate put the population at 2,000,000 by 1972.

Using these figures, there will be a 30 per cent increase in the population by 1970 based on 1960. By the same year there will be an increase of around 32 per cent over 1960 in the number of medical doctors. The expansion of *Seguro Social* to cover 80 per cent of the population in ten years will take an enormous rate of growth. Not only must it grow from a mere 16.6 per cent of the population, but must also keep up with the growing population. This will require an over-all expansion of 700 per

cent! This may seem impossible, but one must remember that *Seguro Social* is based on funds paid in by each employee and employer, and theoretically can expand at any rate since each new worker who is insured contributes his own share with the help of the employer. The growth depends on whether the workers and employers agree to enter the program.

It would be interesting to compare graphically these three factors, but the information is lacking. When attempting to find such information, one man in the administrative branch of *Seguro Social* said that that would be something very interesting, but did not know where such could be found. In my opinion the future plans of *Seguro Social* will be carried out, and many of the medical doctors of Costa Rica will be employed by this autonomous institution, but private practice will not disappear completely. Those persons who are not insured and those who are discontented will seek private consultation. However, the present number of private practices will be greatly reduced. *Seguro Social* will have a post for all the doctors who are willing to work as part of the institution.

The School of Medicine of the University of Costa Rica was founded by law in 1947, but no building was started nor classes taught until 14 years later. In 1953 another law was passed which gave the School of Medicine a source of funds, but was otherwise the same as the previous law of 1947. During this time, there had been much planning and organizing. The courses were to be selected, the equipment obtained, professors hired and the other plans necessary for the operation of a medical school were to be made. An interchange of ideas and professors was arranged with Louisiana State University Medical School. The University and the government agreed that the hospital, San Juan de Dios, would be used as the university hospital also. The medical building on the campus was completed in June of 1960 and dedicated in March of 1961. It is a very modern building of three stories, housing the laboratories and classrooms. There is in addition a pavilion of investigation and an annex for experimental animals.

The plan of studies for medicine in the University of Costa Rica is organized along these basic lines. The plan consists of:³

1. A pre-medical course of two years in the College of Sciences and Letters.
2. A study of the basic sciences (pre-clinical studies in the school of medicine) which lasts two years.
3. The clinical studies, which lasts two years.
4. The fifth and sixth year are dedicated to internship and Social Medical Service with the Department of Public Health.

The two year pre-medicine course in the College of Sciences and Letters consists of Spanish, Philosophy, History of Culture, Sociology, General Chemistry, Biology, and mathematics in the first year. The second year is a study of organic chemistry, general physics, zoology, and general botany. All of these courses are one year in length. Also in the second year a course of one semester each in quantitative and qualitative analytical chemistry is studied.

To be eligible for entrance into the School of Medicine, the student must meet these following requirements:

(a) Besides the general requirements for admission into the University, the student must complete the two years of pre-medical studies.

(b) If the student did not take the pre-medicine at the University of Costa Rica, he must prove that his course of study is equal to that offered in Costa Rica by presenting his plan of studies to a board of the School of Medicine which judges the merit of said courses. In addition he must take exams showing a basic understanding of the biological, physical, and chemical sciences, and the social sciences.

(c) The selection of students is made on the basis of:

1. A health examination, considering physical state and mental health.

2. The value of the grades earned during the pre-medical studies.

3. Proof of vocational aptitudes and an interview with the Department of Orientation.

4. Personal interview with the Board of the School of Medicine.

(d) To enter the School of Medicine, one must be Costa Rican and be no more than 35 years of age, although others from other schools and foreigners whose age is between 35 and 40 years will also be considered.

(e) Students who have studied outside the country and who would like to continue their studies in Costa Rica must fulfill the requirements, and upon application, will be considered.

(f) Grades will be given only in the theoretical part of the studies.

(g) The student must enroll in all the courses of any given year.

(h) If a student fails a subject he need, however, repeat only the course failed.

(i) To continue in the course of studies, the student must fulfill all the subjects of the previous year.

The plan of studies in the School of Medicine is for four years: two years of theoretical work and two years of practical work. Also included in the plan of studies is a year of internship in the hospital in San José, San Juan de Dios. This year of internship during the School of Medicine should not be confused

with the year of internship mentioned earlier that a physician serves after his year of social service. Table III shows the courses studied in the School of Medicine in Costa Rica and the number of hours in each course during the year. These will be subject to changes as the school grows older, but now give an idea of what is taught. This past year, anatomy was taught during the first semester, and the other courses of the first year during the second semester. This will undoubtedly continue in the other years.

The Medical School of the University of Costa Rica is still quite new and it is difficult to say how it has worked. The physical plant is new and complete, based on working counterparts in the United States, so this part should not be any problem in the future. The professors are qualified, and at present

TABLE III
COURSES GIVEN IN THE SCHOOL
OF MEDICINE

<i>Material</i>	<i>I Hours</i>	<i>II Hours</i>	<i>III Hours</i>	<i>IV Hours</i>	<i>V Hours</i>	<i>VI Hours</i>
Anatomy (histol., neuroanatomy, and embryology)	630					
Biochemistry	217					
Physiology	260					
Med. Orientation	36	36				
Library Research	10					
Microbiology		180				
Parasitology		144				
Pharmacology		180				
Patholog. Anat.		324				
Physiopathology						
Propedeutics		144				
Clinical Labora.		108				
Biostatistics		18				
Med. Psychology		36				
Prevent. Medicine		54	100	100		
Intro. to Surgery		36				
Medicine			425	425		
Surgery			348	423		
Pediatrics			204	144		
Obstetrics			110	110		
Gynecology			70	70		
Psychiatry			60	60		
Radiology			25			
Legal Medicine				50		
Ethics						20
Medical History						30
Total Annual Hours	1198	1260	1342	1363	50	

there is no shortage. Besides the regular staff, there are visiting professors, especially from Louisiana State University Medical School. Only the best students are accepted instead of trying to weed out the bad ones in the classroom. This creates a more interested, enthusiastic group. Nor is the course of study impossible, so "flunk outs" are not a necessity and only arise when the student is not applying himself.

There is increasing demand to build up a better and more complete library on the campus at Costa Rica, and the School of Medicine is one of the loudest voices. The School has its own reference library, but is seeking a more complete selection of books and magazines. In the near future there will be a great increase in the library facilities, if things go according to present plans. The new medical school has the support of all the University and the medical profession of the nation. The faculty is enthusiastic and willing to work to make theirs the best school of medicine in Central America.

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Professor of Human Anatomy in the University
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Director of Seguro Social
San José, Costa Rica
- Doctor Rodrigo Jimenez Monge:
Sub Director of the Department of
Epidemiology of Dept. of Public Health
Salubridad Publica
San José, Costa Rica
- Doctor Edgar Lizana Vargas: Pediatrics
External Consultation, Pediatrics
Central Hospital of Seguro Social
San José, Costa Rica
- Doctor Jorge Mezerville Quiros:
Chief of Surgery
Hospital San Juan de Dios
San José, Costa Rica
- Doctor Alvaro Montero Padilla: Ophthalmologist
Chief of Service Clinic of Ophthalmology
Hospital San Juan de Dios
San José, Costa Rica
- Doctor Alberto Oreamuno Flores:
Hospital Clinica Biblica
San José, Costa Rica
- Doctor Vargas Mendez:
Director de Salubridad Publica (Public Health)
Salubridad Publica
San José, Costa Rica
- Professor Ovidio Soto Blanco:
Secretario de Escuela de Medicina
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Acceptance of what has happened is the first step in overcoming the consequences of any misfortune.

—William James

It is the common wonder of all men how, among so many million of faces, there should be none alike.

—Sir Thomas Browne

A highbrow is a person educated beyond his intelligence.—Brander Matthews

Heart Disease

A Report of a Survey in the State of Kansas

L. E. PECKENSCHNEIDER, M.D.; CHARLES LEROY WILLIAMS, M.D.,
and W. G. GREEN*

THE KANSAS HEART ASSOCIATION, in cooperation with the Heart Disease Study Committee of the Kansas Medical Society have just completed a survey of the medical profession in Kansas to try and obtain some idea as to the incidence of rheumatic fever and congenital heart disease in our state. It was generally agreed at the outset that an accurate determination of the incidence of rheumatic fever would be almost impossible since the disease was not generally being reported and its diagnosis is frequently indefinite.

It is hoped this report will stimulate renewed interest in early recognition of rheumatic fever and prompt institution of therapy so that residual cardiac damage may be decreased. It is hoped that it will also stimulate more interest in earlier definitive diagnosis of congenital heart disease especially for those children who may have surgically correctable lesions.

This survey was initiated in February, 1962, when 1,850 of the questionnaires (*Figure 1*) were mailed to members of the Kansas Medical Society.

Most of the questionnaires returned were dated in February, March and April of this year. The data obtained was then tabulated by Arnold Gilbert, M.D., Senior Assistant Surgeon, U.S.P.H.S., Heart Disease Control Program, Chronic Disease Section, State Board of Health, and the tables used in the report were compiled by the Vital Statistics Section of the State Board of Health.

Only 648 questionnaires were returned, or 28 per cent of those mailed. A good geographic distribution of replies was received and while the speciality of the physician was not requested, it was noted the physicians reporting larger numbers of cases were from the pediatricians.

* L. E. Peckenschneider, M.D., is a practicing physician in the Hertzler Clinic at Halstead, Kansas. He is a past president of the Kansas Heart Association and currently is chairman of the Heart Disease Study Committee of the Kansas Medical Society.

Charles Leroy Williams, M.D., is in the practice of Internal Medicine in the Wichita Clinic at Wichita, Kansas. He was president of the Kansas Heart Association when this survey was initiated.

W. G. (Bill) Green has been the Executive Director of the Kansas Heart Association since September, 1960. Prior to that he was the Executive Director of the Missouri Heart Association for eight years.

A survey carried out in 1962 to determine the prevalence of rheumatic fever and congenital heart disease. Twenty-eight per cent of the questionnaires were returned. Their significance is reported here.

QUESTIONNAIRE FOR RHEUMATIC FEVER AND CONGENITAL HEART DISEASE SURVEY

Date

- TO: All physicians in Kansas
Please complete the following queries and return this sheet to the Kansas Heart Association in the enclosed return-addressed envelope.
- I. How many cases of new or recurrent rheumatic fever have you seen in your practice in the past 12 months? New Recurrent
 1. How many in each group are under 15 years of age? New Recurrent
 2. How many in each group are over 15 years of age? New Recurrent
 - II. How many of these patients are now receiving prophylactic therapy?
 1. What kind of prophylaxis are you using? And how many patients?
 - a. Continuous Intermittent
 - b. Sulfonamide Penicillin
 - c. Oral Intramuscular
 - d. Other drugs
 - III. How long do you contemplate keeping your new rheumatic fever patient on your prophylaxis regime?
 - IV. How many cases of congenital heart disease are currently under your observation? Operated Unoperated
 - V. Would you like information regarding facilities in Kansas for further diagnostic studies, catheterization, etc., of your cardiovascular patients?

NAME
(Stamp or Print)
TOWN

Figure 1

TABLE I
KANSAS SURVEY
Rheumatic Fever and Congenital Heart Disease

Number of questionnaires	1,850
Questionnaires returned	648
Number of physicians reporting Rheumatic Fever	256
Cases of Rheumatic Fever reported	742
Number of physicians reporting use of Prophylaxis	271
Number of patients receiving Prophylaxis ...	581
Number of physicians reporting Congenital Heart Disease	261
Cases of Congenital Heart Disease reported ..	2,310

In Table I a summary of the over-all survey form is reported. We were, of course, disappointed in the fact only 28 per cent of the physicians returned the questionnaire. However, we do feel the survey points up a fact that last year we had 401 new cases of rheumatic fever in our state with 305 of these new cases being under 15 years of age and 96 over the age of 15. (Table II)

Table III should be of significance to the open-heart surgical teams in our state. It would be of interest to know how many of these patients have been carefully evaluated with respect to diagnosis and surgical amenability of their lesions.

Using the National Research figure of 8.9 per 1,000 newborn population having a congenital heart lesion applied to the Kansas newborn population in 1961 which was 48,231, there were 430 children born last year in Kansas with a congenital cardiac defect.

From the Vital Statistics Department of the State Board of Health, we obtained the data used in Table IV showing the mortality rates as reported to that department in 1961.

Using the Kansas 1960 Federal Census report, we

TABLE II
REPORTED CASES OF RHEUMATIC FEVER
BY AGE GROUP

Total cases reported	742
New cases	401
Recurrent cases	341
Cases under 15 years	447
New cases	305
Recurrent cases	142
Cases 15 years and over	295
New cases	96
Recurrent cases	199

were able to report the incidence found in our data per 100,000 population by age group. (Table V)

Discussion: One of the primary purposes of this report is to increase awareness that rheumatic fever is now and will continue to be a serious medical problem in Kansas and that at least a partial solution lies in early recognition and adequate therapy. It is well known that mortality and residual cardiac damage is greatly reduced by prompt initiation of anti-rheumatic therapy.

Restricted activity, optimal nutritional care and

TABLE III
REPORTED CASES OF CONGENITAL
HEART DISEASE
BY OPERATED AND UNOPERATED CASES

Total cases reported	2,310
Operated	637
Unoperated	1,673

TABLE IV
DEATHS FROM RHEUMATIC FEVER AND
CONGENITAL HEART DISEASE
BY AGE GROUP, KANSAS, 1961

Rheumatic Fever	7
Under 15 years	—
15 years and over	7
Congenital Heart Disease	126
Under 15 years	109
15 years and over	17

full therapeutic doses of salicylates remain in the mainstay of therapy for the acute stage.

The Kansas Heart Association has recently appointed a Rheumatic Fever and Congenital Heart Disease Committee to study and possibly to make recommendations to the proper agencies in setting up a low cost prophylaxis program for the prevention of secondary attacks of rheumatic fever for the medically indigent families. Over half the states have such programs.

Specific Prophylactic Methods

The American Heart Association recommends these specific prophylactic methods. It is interesting to note in Table VI how close Kansas physicians are following these recommended measures.

Several effective methods of continuous prophylaxis are available, and the physician must decide which is most suitable for an individual patient.

TABLE V

REPORTED CASES OF RHEUMATIC FEVER
PER 100,000 POPULATION IN AGE GROUP

Cases under 15 years	66.5
New cases	45.4
Recurrent cases	21.1
Cases 15 years and over	19.6
New cases	6.4
Recurrent cases	13.2
1960 Kansas Population for above age groups (ac- cording to Federal Census Report)	
Under 15 years	672,312
15 years and over	1,506,299
Total	2,178,611

Oral vs. Intramuscular Route: Oral medication depends on patient cooperation. Most failures occur in patients who fail to ingest the drug regularly. Patients should receive careful and repeated instructions on this point from the physician. Patients who have proved unreliable in taking oral medication should receive long-acting depot penicillin, given intramuscularly once a month.

Penicillin vs. Sulfonamides: Sulfadiazine has the advantage of being easy to administer, inexpensive, and effective. Although resistant streptococci have appeared during mass prophylaxis in the armed forces, this is rare in civilian populations.

Penicillin rarely produces serious toxic reactions. It has the further advantage of being bactericidal for Group A streptococci, and strains of Group A streptococci resistant to penicillin have not been encountered.

Benzathine Penicillin G—Intramuscular

Dosage: 1,200,000 units once a month.

Toxic reactions: Urticaria and angioneurotic edema.

Reactions similar to serum sickness include fever and joint pains and may be mistaken for rheumatic fever.

Some discomfort due to local irritation at the injection site is usual.

A careful history of allergic reactions to penicillin should be obtained. Although many individuals who have had reactions to penicillin may subsequently be able to tolerate the drug, it is safer not to use penicillin if the reaction has been severe and particularly if angioneurotic edema has occurred.

Sulfadiazine—Oral

Dosage: From 0.5 to 1.0 Gm., once a day. The smaller dose is to be used in children under 60 pounds.

TABLE VI

*Reported Use of Prophylaxis
By Frequency of Use*

Number of patients reported as receiving continuous Prophylaxis	212
Number of patients reported as receiving intermittent Prophylaxis	87

*Reported Use of Prophylaxis
By Method of Administering*

Number of patients reported as receiving oral Prophylaxis	128
Number of patients reported as receiving intramuscular Prophylaxis	173

*Reported Use of Prophylaxis
By Kind of Prophylaxis Used*

Number of patients reported as receiving Sulfonamide	52
Number of patients reported as receiving Penicillin	337
Number of patients reported as receiving other drugs	7

Toxic reactions are infrequent and usually minor. In any patient being given sulfonamides, consider all rashes and sore throats as possible toxic reactions, especially if they occur in the first eight weeks. In patients on this prophylactic regimen, it is hazardous to treat toxic reactions or intercurrent infections with sulfonamides. The chief toxic reactions are:

Skin eruptions: Morbilliform—continue drug with caution. Urticaria or scarlatiniform rash associated with sore throat or fever—discontinue drug.

Leukopenia: Discontinue drug if white blood count falls below 4,000 and polynuclear neutrophils fall below 35 per cent because of possible agranulocytosis which is often associated with sore throat and a rash. Because of these reactions, weekly white blood counts are advisable for the first two months of prophylaxis. The occurrence of agranulocytosis after eight weeks of continuous prophylaxis with sulfonamides is extremely rare.

Penicillin—Oral

Dosage: 200,000 to 250,000 units once or twice a day. Twice daily is probably more effective.

Toxic reactions: Except for local irritation, reactions are similar to those with intramuscular penicillin, but occur less frequently and tend to be less severe. A careful history concerning penicillin allergy should, however, be obtained.

Cardiac Arrest

*Automatic ECG Synchronized External Cardiac Massage Machine**

LILIA M. RODRIGUEZ TOCKER, M.D.; ALFRED M. TOCKER, M.D.;
R. GILBERT HAMMOND, and DAVID GIVNER, M.D.,** *Wichita*

EXTERNAL METHODS OF resuscitating cases of cardiac arrest (cardiac standstill or ventricular fibrillation) by external massage and defibrillation as advocated by Kouwenhoven, Jude and Knickerbocker¹⁻³ have been well received and popularized recently. Reports indicate an increased number of successful resuscitations as compared with results obtained with the previously well-standardized open-chest techniques. The external method offers increased hope of resuscitating cases of sudden death due to coronary occlusions and myocardial infarctions. To a large extent these improved results may be attributed to a shortened time interval between the occurrence of the catastrophe and the initiation of resuscitative measures which may be applied anywhere by anyone trained in the technique, eliminating the need for special facilities and highly technically trained professional personnel required for open-chest resuscitation.

Yet a large percentage—probably a majority—of resuscitated cases do not survive due to failure to maintain an adequate heart beat or recurrence of the cardiac arrest. All too often a physician may successfully resuscitate such a case, spend several hours observing the patient, and then leave the patient when all seems well, only to be called later that the arrest recurred and the patient died. All too often the cause of the cardiac arrest is not or cannot be corrected, and the conditions which gave rise to the catastrophe in the first place remain and result in a repetition of the arrest. All too often while resuscitative measures were applied quickly enough when the initial catastrophe occurred suddenly and unexpectedly, an inadequate heart beat or recurrence of the cardiac arrest develops and repetition of resuscitative measures are not applied quickly enough to succeed.

As a rule the initial resuscitation is accomplished by massage by individuals. A number of machines have been developed to maintain external cardiac massage over long periods of time. However, hearts which fail to respond in a relatively short time to resuscitative measures offer a poor and almost hopeless prognosis. Use of such machines to support a failing heart has also been advocated.

Recurrence of death in many resuscitated cardiac arrest cases can be prevented by routine use of an automatic external cardiac massage machine developed by the authors.

While the Rodriguez-Tocker automatic external cardiac massage machine which we have developed may be used under such circumstances, our machine serves as a "sentinel" to monitor the heart beat of resuscitated patients, send forth an alarm should the heart beat become inadequate or an abnormal heart beat or cardiac standstill or fibrillation occur, and immediately initiate treatment. We advocate that *every resuscitated patient be placed under this machine for at least 24 hours* (as most recurrences of cardiac arrest occur within a few hours after the initial resuscitation).

The machine has the following automatic features:

- Automatic inactivity of the cardiac massage plunger when the heart beat is adequate.
- Automatic ECG synchronized (R wave activated) external cardiac massage in bradycardia to "support" the heart.
- Automatic external cardiac massage at pre-set selected rates in tachycardia, cardiac standstill and ventricular fibrillation.
- Automatic alarm when the heart beat becomes inadequate and treatment, as set out above, is automatically initiated.

* Exhibited at the 1962 annual meeting of the Kansas Medical Society at Kansas City, Kansas, April 30-May 2, 1962. This machine was developed and constructed with funds supplied by The McGuire Research Foundation of Wichita, Kansas. The basic massage plunger unit was constructed by Mr. Harry Cordes, engineer, of Lacord Instruments of Wichita, Kansas. Automaticity, ECG synchronization and accessories were designed and developed by R. Gilbert Hammond, engineer, Wichita, Kansas.

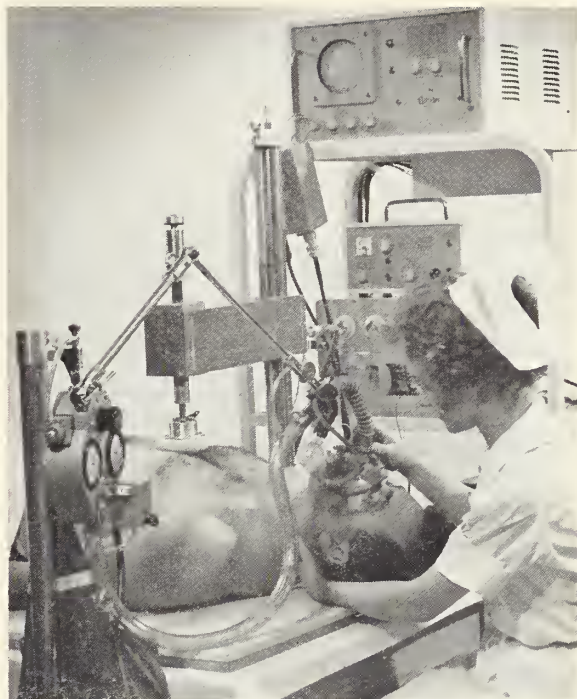
** Chief of the Department of Medicine, V. A. Hospital, Wichita, Kansas.

The rate of massage, depth of massage, and the pressure-relax ratio of the massage plunger may be selected, pre-set and changed as desired. Massage pads for infant, child or adult patients are interchangeable.

Artificial respiration must be maintained by other means. The usual methods of maintaining artificial respiration are acceptable. Tracheostomy is often indicated. An automatic artificial respirator (such as the Bennett's intermittent positive pressure machine with an automatic cycling unit) may be used to advantage with the automatic external cardiac massage machine. We have considered automatic periodic hesitation of the massage-plunger to permit more adequate ventilation of the lungs, but have concluded that such periodic hesitation of cardiac massage is unnecessary and probably undesirable if the simultaneous artificial respiration is efficient and adequate.

Summary

We advocate that every resuscitated cardiac arrest case be placed under the Rodriguez-Tocker automatic external cardiac massage machine (or similar apparatus) for at least 24 hours. This machine serves as a "sentinel" in resuscitated cardiac arrest cases, sounding an alerting alarm when the heart beat becomes inadequate, preventing recurrence of cardiac arrest by automatic activation of the massage-plunger with the onset of ventricular tachycardia or bradycardia, and immediately initiating resuscitative measures should cardiac arrest (standstill or ventricular fibrillation) recur. It is automatically inactivated by an adequate heart beat, automatically activated (at pre-set selected rates) in cardiac arrest and tachycardia, and automatically activated by the synchronized ECG (R wave) in bradycardia. It may be used to support the failing heart, resuscitate the arrested heart, and maintain the fibrillating heart until external defibrillation can be accomplished. It is adaptable to infant, child and adult patients. An automatic respirator



The Rodriguez-Tocker Automatic (ECG Synchronized) External Cardiac Massage Machine. The electrocardiograph, cardioscope and other electronic monitoring and resuscitation equipment used in the development of this machine were furnished by The Birtcher Corporation, Los Angeles, California.

should be available for use with the machine when indicated.

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The Management of Vaginitis

Report of Therapeutic Trial of a New Combination of Agents

KENNETH C. PRICE, M.D.,* and SETH E. WISSNER, M.D.,** St. Louis

Added to the therapeutic armamentarium of vaginitis is a combination of agents designed to cover the microbial spectrum and offering a satisfactory record of relief.

Introduction

MUCH CONFUSION EXISTS concerning methods of management of vaginal infection. This is due in part to the multiplicity of preparations available and to the many different regimens of treatment.

Because of the frequency of vaginal infection in the female population, there is need for effective, safe agents for its management.

Weinberg has recently evaluated Cenaser[†], a new preparation for use in the treatment of vaginitis. He reported successful results in over 90 per cent of his patients with infections due to trichomonas or monilia. The preparation appears to offer the advantage of being effective irrespective of the organism responsible.

Cenaser consists of a combination of three agents. Each possesses selective action on different pathogens. In consequence, the formulation possesses a wide range of therapeutic activity. Cenaser contains 9-aminoacridine undecylenate, N-myristyl-3-hydroxybutylamine hydrochloride and methylbenzethonium chloride. The efficacy of each of these ingredients is well established in the scientific literature.^{12, 13}

Bacteriologic *in vitro* studies have shown that Cenaser kills *Trichomonas vaginalis* at concentrations of 1:25,000 and *Candida albicans* at concentrations of 1:200,000. Similar antimicrobial activity was found against many common bacterial pathogens.²

Methylbenzethonium chloride is not only bactericidal, fungicidal and trichomonocidal but also reduces surface tension of the vaginal secretions, thus

assuring penetration of the antiseptic agents into the vaginal folds.¹⁴

9-aminoacridine undecylenate was found to be one of the most promising antibacterial agents of 65 tested against gram-negative and gram-positive organisms.³ In addition it has a high degree of antifungal activity, particularly against anaerobic bacteria.⁴

A 0.1 per cent tincture of N-myristyl-3-hydroxybutylamine hydrochloride, a quaternary topical antiseptic, removed or killed 99 per cent of bacterial organisms on human skin.⁵

The active ingredients in the formulation of Cenaser were found to be relatively free of irritating properties as tested by the method of Draize.

Our experience with this new preparation has been successful and its use appears to offer a satisfactory alternative form of therapy. Results of our study in 50 patients are presented below.

Materials and Methods

Fifty female patients, ranging in age from 16 to 75 years were studied. Vaginal infection was due to *Candida albicans*, *Trichomonas vaginalis*, *Hemophilus vaginalis* or mixed bacterial flora.

Patients reported the usual symptoms of leukorrhea, pruritis, white or yellow discharge and burning sensation. The patients were divided into four groups depending upon the etiology.

Direct microscopic examination of fresh unstained material in a wet smear or in a saline hanging-drop preparation was done routinely at the initial examination of each patient. Smears were also obtained for differential staining and cultures of vaginal secretions were made to insure accurate diagnosis.

Cenaser therapy was used for periods of from one to 22 weeks depending upon the progress made by each patient. The patients were instructed to insert one Cenaser tablet daily high in the vaginal vault. Treatment was continued through the menstrual period and a vinegar-water douche was permitted, as desired, twice each week.

One additional patient did not continue treatment through the first week and is not included in the series.

* Cases reported include those studies by the resident staff of St. Luke's Hospital, Department of Obstetrics and Gynecology with the permission of George J. L. Wulff, M.D., Chief of Service.

** Cases studied with William D. Hawker, M.D.

[†] Cenaser, Central Pharmacal Company, Seymour, Indiana.

Results

Results in our series of 50 female patients are classified according to etiology. Excellent results were obtained in four of the seven patients with trichomonal vaginitis. Prompt alleviation of itching, irritation and discharge occurred and diagnostic tests became negative upon repeated examinations. Symptomatic improvement was seen in three additional patients although complete eradication of the infecting organism did not occur.

Seventeen patients with *Candida albicans* infection were also treated. On the same basis as above, excellent results were seen in six patients and improvement was seen in seven others. Four patients did not respond to therapy.

Eight of nine patients with *Hemophilus vaginalis* infection showed excellent results. One patient failed to respond to treatment.

Seventeen patients with non-specific vaginitis, presumably due to mixed bacterial infection were studied. Excellent results were seen in ten patients while four others improved. Three patients failed to respond.

Discussion

In recent years the frequency of monilial vaginitis appears to have increased. Whether this is due to better diagnostic techniques or to the widespread use of antibiotics is debatable. It is particularly true in pregnancy where changes in vaginal flora, increased glycogen content and increased vascularity favor monilial growth.^{7, 8}

Trichomonas vaginalis is usually accompanied by a greatly increased bacterial population in the vagina. pH values tend toward the alkaline side. *Trichomonas vaginalis* is found in about 25 per cent of women, but in many of them it is asymptomatic.⁹

In recent years attention has been directed to a gram-negative pleomorphic bacillus termed *Hemophilus vaginalis* by Gardner and Duke. It was found to be the causative agent of a symptomatic vaginal discharge previously considered to be mixed or non-specific.¹⁰

Romney reported that both *Trichomonas vaginalis* and *Hemophilus vaginalis* may be harbored asymptotically in the male and transmitted by sexual contact to the female. Under favorable conditions these organisms may proliferate and produce the clinical symptomatology of a resistant vaginitis.¹¹

With such a variety of causative agents, the choice of specific therapy may prove difficult or impractical. Choice of a therapeutic agent with a wide spectrum of activity may therefore be advantageous in certain cases.

In this evaluation, Cenaser appeared to provide quite satisfactory results. It is recognized that such therapy should not substitute for more specific meth-

ods of treatment where the etiology can be confirmed beyond question. Where this is not feasible, the use of Cenaser would appear to offer certain advantages.

Conclusions

1. A new preparation, Cenaser, has been evaluated in 50 cases of vaginitis. Etiologic agents in this series were *Trichomonas vaginalis*, *Candida albicans*, *Hemophilus vaginalis* and non-specific mixed bacterial invaders.

2. In 28 of the 50 patients, microbiological procedures proved eradication of the etiologic organisms. An additional 14 patients became symptom free. In view of the common occurrence of these organisms in normal, symptom-free women, we considered therapy to be successful in 42 (84 per cent) patients in this series.

3. Side effects appeared in only two cases. Irritation and burning were reported in one patient with vulvo-vaginal ulcer; the same symptoms were experienced by a second patient with endometrial lesions. It was not necessary to discontinue medication in either of these patients.

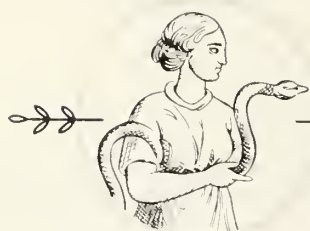
4. Patient acceptance of Cenaser was considered relatively good in view of the normal reluctance to the use of medication in the form of suppositories or vaginal inserts.

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Medical HISTORY

Arthur E. Hertzler

The Kansas Horse and Buggy Doctor: A Biographical Sketch

JERRAD J. HERTZLER, M.D., *Kansas City**

"(He) was a supreme iconoclast. His homespun, horse-and-buggy, medical philosophies and writings permeated unto the far corners of the earth—omnivorous reader, writer, researcher; a master surgeon, pathologist, teacher."—Dr. Vincent T. Williams

IN ALL THE ANNALS of medical history of the State of Kansas, no individual physician was more colorful or distinctive than Arthur Emanuel Hertzler of Halstead. Born on July 25, 1870, in the little Mennonite community of West Point, Lee County, Iowa, Hertzler became known around the world for his medicine, his wit, and his philosophy. Striking in appearance as well as mind, he was a tall, gangling man, standing six feet, two and one-half inches, with stooped shoulders, peering eyes, and a countenance which reminded many of Lincoln.

Hertzler's forebears were German Mennonites, originating in southern Bavaria, near the Swiss border, who immigrated to Lee County in 1839. His mother, Hannah Krehbiel, was the first Mennonite child born west of the Mississippi, being the daughter of one John C. Krehbiel, who, with his family, was the first Mennonite to settle in Iowa. His father, Daniel Hertzler, was the son of another pioneer Lee County Mennonite family.

Hertzler was one of four children, having two sisters, Anna and Christina, and a brother, John. The four were raised in an atmosphere of strict religion and hard work. This environment was altered, how-

ever, when Arthur was six years old. At this time, at the urging of a brother, Daniel Hertzler gave up his Mennonite religion in favor of the Methodist faith, which was newly spread to Lee County. Hertzler's mother, however, could not reconcile this change with her earlier upbringing, and the result was a family schism. Hertzler later wrote, "It follows that our family was as completely broken as it would have been by divorce, though in outward form it remained intact, a model family to the neighbors. But the fact remains, though we children were of course legally and ecclesiastically legitimate, spiritually we were bastards."

This family conflict profoundly affected Hertzler's life. From that moment onward he was skeptical of organized religion. More important, it left him confused, insecure, and convinced that only by his own intensive efforts would he ever succeed in the world.

It was in the midst of these trying times that Hertzler first became curious about the field of medicine. He recalled that the family feuding affected his mother so adversely that the family doctor was often called. On one of the occasions young Arthur overheard the doctor tell his father, "Daniel, there is no medicine I can give that will cure your wife." In later life, Hertzler recalled that this was the first time the problems of medicine ever entered his mind.

The early schooling which young Arthur Hertzler experienced was typical of rural America in the late 19th century—the one room country school. It was here that his fiercely independent nature began to make itself apparent. Besides the usual schoolboy pranks of playing hooky and teasing the girls, Hertzler became aware of his own frail, gangling build, and resolved never to allow anyone to take advantage

* This paper was written by Dr. Jerrad J. Hertzler as his sophomore thesis and was awarded first prize in the D. C. Guffey History of Medicine competition in 1960. Dr. Hertzler is now serving his internship at the University of Kansas Medical Center, Kansas City, Kansas.

of him. "There has been throughout my life," he later wrote, "a subconscious something which whispered, 'If you must, you can.' I never had an aggressive fight in my boyhood but I never turned back to foe." He delighted in defeating the local bully, and years later recalled as one of his favorite recollections an occasion when he hit a teacher with his slate when the teacher attempted to punish him unjustly.

In these early days, Hertzler developed an interest in academic pursuits, and medicine in particular. In childhood games he often played at being a doctor, and the workings of the body and the aura of things medical began to fascinate him. He became an omnivorous reader, and his desire for education greatly puzzled his father, who had been born and raised in the pioneer tradition where faith and hard work were the only measures of a man's worth. Nevertheless, it was arranged for Hertzler to go to the nearby Denmark Academy, a Congregational school, which offered him the approximate equivalent of the first two years of a college education. During the four years at this school he lived with an uncle, a blacksmith, earning his keep through long hours of hard work. Hunger often added to his hardships, and ill-fitting clothes made him the laughing-stock of the school. This was especially bitter for Hertzler; for, he was very sensitive about his clothes as a boy, regarding them as the symbol of his deprived state. His reaction was to redouble his scholastic efforts, denying himself social life or any of the other pleasures ordinarily associated with secondary school. Therefore, despite these struggles, he did well in his studies and graduated from the Academy in 1887.

At this time, Hertzler's parents chose to move to Newton, Kansas, and Arthur continued his education at Southwestern College in Winfield, receiving his A.B. degree in 1890. The early years of his education left Hertzler with bitter memories of the hardship and humiliation they had cost, and he later wrote, "The scars our souls receive in our childhood remain in our subconscious selves and all our philosophy and learning will not eradicate them."

Nevertheless, Hertzler's desire for a medical education was stronger than his bitterness, and he now began, as was the custom of the time, to read medicine in Moundridge, Kansas, under the late Dr. S. S. Haury. Here he was introduced to clinical diagnosis and began to learn the fundamental sciences basic to medicine. At Dr. Haury's suggestion he then enrolled in Northwestern University Medical School, having spent one year in his preceptorship.

As a medical student, Hertzler's early years of hard work and his fierce determination to succeed stood him in good stead. Many of his studies consisted of grueling, rote memorization of text books and lecture notes, and he became proud of his mastery of this new knowledge. He also gleaned much from

the distinguished faculty, including John Harper Long in chemistry, Jaggard in obstetrics, and Christian Fenger in surgery. He came to consider Fenger one of the greatest teachers of all time. It was Fenger's precept that the only way to learn surgery is to beat a path from the operating room to the laboratory; to learn pathology, he said one must look through his microscope every day of his life. With professors such as these, Hertzler's desire to excel burned even more fiercely. In addition to formal studies, he now began his own investigations. He experimented with anastomoses of the gut, which soon led to investigations into wound healings; he also began to investigate the structure and function of the peritoneum. He acquired a critical attitude which remained with him throughout his life, accepting little on faith, and seeking for himself the answers to his questions. He graduated with the M.D. degree on April 24, 1894. (*Figure 1*)

While he was in medical school, Hertzler's family moved from Newton to nearby Moundridge, Kansas, and on completion of his studies, Hertzler returned to Kansas to care for his father, who was ailing. It was at this time that he first became acquainted with the little town of Halstead, Kansas, which he was destined to make his home for the remainder of his life. The story is told that a great tornado struck near Halstead on May 1, 1895, and since the town had no physician, young Dr. Hertzler drove from Moundridge to Halstead. Finding the community to be a pleasant one, he decided that it was here he should establish his country practice. This was not to be done, however, until after Hertzler added more stature to his educational accomplishments by winning a B.S. degree from Southwestern College in June, 1896, and an M.A. in June, 1897, from Illinois Wesleyan University, at Bloomington, Illinois.

His studies finished for the time being, Hertzler began his practice in Halstead, a practice which was to make him famous as the "horse-and-buggy-doctor." By this time he had taken himself a wife, the former Myrtle Arnold of Denmark, Iowa, whom he married May 1, 1894. To this union, which later ended in divorce, were born three daughters: Agnes Hancock, who later became an M.D., practicing ophthalmology in Halstead until her death in 1925, Helen Lenore, and Margaret Lois.

Armed only with his medical bag and a great deal of determination, Hertzler soon established himself as a willing and able practitioner. Since his practice was a rural one, it was often necessary for him to travel long distances by horse and buggy to see his patients. Such travels tested his physical endurance as often as his medical skill, and he soon learned that in addition to an instrument bag and a medicine case, a scoop shovel, wire cutters, hammer, lantern, and a Colt "Peacemaker" were indispensable



Figure 1. The Complete Physician, 1894. Hertzler as he looked on graduating from medical school.

tools of his trade. Although the hours were long and the rewards often few, he was proud to claim, "I never refused a call, no matter what the condition, or the chances of remuneration." And he grew to have a great respect for the simple farm people who were his patients. He later wrote, "The doctor struggling to reach a patient received every aid. Nobody complained of the hardships, certainly not the doctor. Though underprivileged to the *n*th degree as some of these people were, yet after all they knew the essentials of the more abundant life, the brotherhood of man."

In his practice Hertzler fought diseases and epidemics of all varieties, and he himself fell victim to several, including tuberculosis and typhoid fever. Diphtheria, measles and similar maladies were his constant foes, and often the best medical care he could offer was not enough. It was, perhaps, his failures which caused him to develop one of his life-long philosophies, that comforting the stricken is often as important as healing them, especially when it was certain that death would supervene. "Though scientifically futile," he later wrote, "if my presence in a situation ever brought comfort to anyone I am sure it was more worthwhile than anything else I have ever done. Our mission in life is to lessen human suffering as much as we can."

During the long hours which he spent in his buggy, Hertzler found time to continue his studies and to practice his favorite pastime of shooting his "Peacemaker" revolver. It was now that he began to contemplate furthering his studies by going to Europe, and with this idea in mind he began to study various languages. Possessed of a knowledge of German from his youth, Hertzler learned French, Spanish, and Italian while he jogged over the dusty, Kansas roads. No small tribute to his abilities and his determination!

For four years Hertzler saved in preparation for his studies abroad, planning to do resident graduate work in Berlin. After the death of his father, in 1895, he received a small inheritance, and instead of purchasing a farm, as advised by his uncle, he used the money for these graduate studies. His plans at this time were to concentrate on the study of anatomy, hoping to teach at Northwestern after his return from Europe. Thus it was that in 1899 Hertzler traveled to Berlin to study anatomy and surgical pathology at the feet of the great German professors, Hans Virchow and Wilhelm V. Waldeyer.

In passing, it may be mentioned that while in Europe Hertzler had occasion to spend his vacation time bicycling about the continent with his boyhood chum, C. E. Krehbiel of Newton, who later became a prominent leader in the Mennonite Church.

The two years spent in Berlin were, without a doubt, the highpoint of Hertzler's preparative years. The great Virchow was an immediate source of inspiration. When, soon after his enrollment, he approached Professor Virchow to ask if he could do research on the peritoneum, Virchow assented, saying, "What is needed is someone who will live in the abdomen for 20 years and then write of what he saw." With great kindness, Virchow encouraged his every study, cautioning him to question everything, and encouraging him into the paths of original thinking and diligence. "He who has never shed tears over his work does not know what it is to try,"

Virchow once told him. Some twenty-four years later Hertzler repaid Virchow's sound advice with his two-volume work on *The Peritoneum*.

It is interesting to note, in passing, that Hertzler's seatmate in Virchow's laboratory was Eric Hoffman, later renowned as one of the discoverers of *Treponema pallidum*.

Equally lasting was Waldeyer's influence. The great anatomist laid the basis for Hertzler's later skill as a surgeon, and up until the Second World War, some of the dissections which Hertzler made were still to be found in the museum of the University in Berlin.

In addition to these studies, Hertzler worked in many clinics in Berlin, learning everything he could which related to the field of medicine. He studied surgery of the nose and throat under the distinguished Professor Janzen, practicing his surgery on cadavers after bribing the custodian of the deadhouse. He attended the surgical clinics of König, von Bergmann, and Lexer, working regularly 11 hours a day at these studies for over a year. He came to consider von Bergmann the greatest surgical pathologist of all time, and he strove to emulate him. He studied diseases of the chest under Brandenburg and the renowned internist, Gerhardt. He studied dermatology at Professor Lassar's clinic on diseases of the skin. In the end, his work was of such high quality that Waldeyer offered him an assistantship in anatomy, and Virchow urged him to give up his ideas of becoming a surgeon to devote full time to his researches. The influence of the great school in Berlin made a lasting mark on Hertzler's life. "No American teacher ever showed me the many favors that many of these German professors did," he later wrote. "In thinking over my experiences in Berlin, I have the memory of having heard some of the greatest men of all time. What they talked of was in the books, but there was the stimulus of personality."

After two years abroad, his formal studies over, Hertzler returned to America. He was now offered the chair of Professor of Anatomy at Northwestern University, and being undecided about accepting the position, he met with the President of the University and several faculty members. Just prior to this meeting one of the faculty members, an old acquaintance, advised him to "go out and practice in the Southwest; the academic atmosphere will throttle you." Accordingly, Hertzler returned to tiny Halstead, where he resumed his practice of surgery and general medicine, quite uncertain of the future.

Although teaching in Chicago did not appeal, Hertzler nevertheless became associated with medical education. In 1902 he accepted a position as teacher of histology and pathology at the University Medical College of Kansas City, a position which he

held until 1907 when the school closed its doors for the last time. He then became an assistant professor of surgery at the University of Kansas School of Medicine, later becoming a full professor of surgery in 1919, and continuing in this position until 1944. As a teacher at the University Medical College, Hertzler used to advantage the methods of Waldeyer, and at this time he published his first two books, *Laboratory Guide in Bacteriology* and *Laboratory Guide in Histology* which were used by the school as textbooks. As a professor in Kansas City, Hertzler was forced to limit his works in Halstead to week ends, when he regularly returned by railroad to keep his young practice going. At the same time he began to establish himself as a Kansas City surgeon.

It was now that the years of toil and preparation began to repay their dividends. Hertzler's stature as a surgeon began to grow. Thoroughly grounded in anatomy and pathology, and stimulated by fierce initiative, he soon found his skills put him in a position of eminence on the Kansas scene. Besides his formal training, Hertzler had native abilities which stood him in good stead. "Surgeons are born just as musicians are born," he wrote. "The fundamental factor in success in surgery is the ability to give absolutely everything that is in him to his task." Fame of his abilities soon spread. By 1917, the Associate Dean of the University of Kansas School of Medicine could write, "Dr. Hertzler is probably the most widely known surgeon in Kansas." At the operating table he was considered by many of his colleagues, including the great Logan Clendening, to be the "greatest surgical pathologist that ever lived." Hertzler himself remarked more than once that he became a surgeon to get specimens and satisfy his curiosity regarding his clinical judgements. At the same time, Hertzler never ceased to study anatomy, and he performed dissections whenever possible. His expert knowledge in these fields permitted him to act with speed and confidence at the operating table. He later wrote, "Generally speaking, prolonged operating, as one so often sees it, is due to lack of anatomical knowledge, making the operator fearful to do long arm strokes and sharp dissection so indispensable to clean and rapid operating." He often performed thyroidectomies in less than fifteen minutes, and one of his students recalls having once seen him enter the operating room at 7:56 a.m., whereupon he scrubbed, gowned, gloved, opened, diagnosed inoperable carcinoma of the head of the pancreas, and was out of the operating room by 8:05 a.m.!

As remarkable as Hertzler's surgical speed was his simplicity. Dr. Chesky, his chief assistant at Halstead, recalled that he used fewer instruments than any surgeon he had ever known. Once he was known to have performed an appendectomy with only a scalpel,

two hemostats, scissors, and a needle holder, and a former resident of Hertzler's recalls having seen him do a thyroidectomy while employing only three hemostats.

Hertzler was remarkable as well for the versatility of his surgical ability. He did not hesitate to operate on any part of the body, and his repertoire included practically the entire range of surgery then known. His most noted work was abdominal surgery and surgery of the thyroid. In addition, he did all forms of brain surgery, including removal of tumors and gasserian ganglion resection; he did all forms of urological surgery; he did a good deal of orthopedic surgery, especially in his earlier years, including bone grafts and surgery for osteomyelitis; he did rectal surgery, correction of congenital conditions, such as congenital hip, and even some plastic surgery. In this work he came to rely on his trusted associate, Dr. Victor Chesky. Late in life he wrote, "I never feared any operation and do not now; but, somehow when confronted by a difficult operation I like to see my old time-tried assistant of more than 20 years at my side."

Hertzler operated seven days a week, and it was his practice to begin promptly at 8:00 a.m., expecting the patient to be prepared in advance so that he could begin promptly. He seldom did fewer than four major operations a day, and generally did seven or eight. In between the majors he would do minor surgery or see clinic patients. It was his practice to sit on a swivel stool while operating, and he only stood "when things got tight." His assistants reported, however, that he very seldom stood! Calm and not given to temperamental outburst, Hertzler was the picture of confidence and control in surgery. He once chuckled, "My own ambition, when my work is done I shall have earned the epitaph: 'Practiced surgery 52 years and never scolded a nurse.'"

In his country practice at Halstead, Hertzler established what he called his "kerosene circuit," by traveling to surrounding communities to operate for the local physicians. He went without hesitation wherever he was called. On these trips he operated without the benefit of hospital facilities, and the majority of these operations were actually performed on kitchen tables. It was under these conditions that Hertzler learned to work with the barest minimum of instruments, usually with inadequate lighting, and under conditions which precluded the use of accepted methods of aseptic technique. He soon became convinced that prevention of infection depended on speedy performance of the surgery, with a minimum of trauma to the tissue involved, and he concluded further, that most of the routine procedures generally associated with aseptic surgery—including the wearing of face masks—were superfluous. His later appli-

cations of these convictions to his hospital operations often aroused opposition, but his hospital records indicate that his record of post-surgical infections was far lower than average.

Thus, Hertzler's renown as a surgeon spread, and as his fame grew his practice did likewise. He soon began to develop his facilities at Halstead. Prior to his travels to Europe, a tiny office above the "Ideal Theater" in Halstead had been the seat of his practice. Needing room for surgery, and because there was no hospital near, he built a two and one-half story building, which he occupied June 17, 1902. This structure had five rooms for surgical patients on one floor, and an equal number for medical patients on another. With the continued growth of his practice, he found it convenient to incorporate his hospital in 1913. In 1915 he enlarged the east end of the building, and in 1916 completely remodeled the hospital, stuccoing and fireproofing it as well. Expansions continued rapidly with a nurses' dormitory being added in 1919, a north annex in 1925, the Agnes Hertzler Memorial Clinic in 1926, and in 1930 the hospital was completed as a quadrangle, resulting in facilities for over 200 patients, with a dormitory for over 100 nurses. If placed end to end the buildings would measure 576 feet.

The private hospital was an accepted institution in the early years of this century. However, as time passed, Hertzler found the management of his rapidly growing institution to be an increasing problem. Furthermore, rising taxes, which Hertzler bitterly opposed, made private ownership of the hospital impractical. Therefore, he eventually began to consider transferring the title to an independent society. He approached leaders of both the Methodist and Mennonite Churches, but both were unwilling to accept the management of the hospital. In late 1926 he considered attaching the hospital to the facilities of the University of Kansas School of Medicine. He wrote to Dean Wahl, "I have had in mind for some time to make my hospital over to some public organization in order that the people of Kansas, whose money built it, may be assured of its benefit in perpetuity. If in some way it could be attached to the State Medical School to serve as a sort of holding corporation the primary purpose would be attained." However, no satisfactory arrangement could be made for this, and Hertzler eventually withdrew his offer. Finally, after long consideration, he decided to transfer the title to the Sisters of St. Joseph, a Catholic order. This was done on April 20, 1933, for the sum of \$1, with Sister Lawrence as first superior under the new management. The institution continues to be managed by the Sisters, and in 1952 celebrated its 50th anniversary.

As mentioned previously, Hertzler, in the early

days following the establishment of his hospital in 1902, continued to spend five days each week in Kansas City. For this reason he depended on assistants in Halstead who carried on the general practice and aided in surgery there. Hertzler's first assistant was Dr. Howard Hunsberger. Next, he was assisted by Dr. John Sutton, then by Dr. Wuttke, and then by Dr. Gibson, who later became a neurologist in Kansas City. Next, he had the services of Dr. Dillingham, later of Salina, who was followed by Dr. Guy R. Duer and then by Dr. Victor E. Chesky. Drs. Duer and Chesky had both been on Hertzler's surgical service at Kansas City General Hospital, and Chesky was destined to remain as Hertzler's close friend and chief assistant for the remainder of Hertzler's life.

Therefore, because of this double practice, a reader of the *Halstead Independent* newspaper in 1911 would have seen the following professional card:

Drs. Hertzler & Wuttke
General Practice and Surgery

Dr. Hertzler will be in Halstead every Sunday and Monday and oftener if needed.

Kansas City address: 402 Argyle Bldg.

Office Hours 1 to 3.

In his work in Kansas City, Hertzler became associated in surgical practice with Dr. Larry Engle, who assumed more of the practice as Hertzler concentrated his efforts in Halstead.

Through the years, Hertzler vigorously continued the research studies which had first attracted his attention in medical school. His experiments in wound healing and his research into the peritoneum, both of which he began while a medical student, were studies which he continued to pursue. In Europe he became interested in the pathology of the thyroid gland, and investigated the problems involved in thyroidectomy, a field which was only then beginning. He soon became an authority on the subject. Equally important was his interest in local anesthesia, a technique which he brought to this country from Germany, where he did his earliest experiments on himself, using cocaine as the anesthetic. In local anesthesia he again established his prominence by writing the first book on the subject ever published in the English language. Hertzler's researches continued throughout his life, and he constantly stressed the need for continued study and improvement. "There is no standing still in medicine," he wrote. "The young doctor soon finds out that much of what he learned in school turns out to be premature, that it does not stand the test of time, or that it has no place in the field of practical medicine. . . . The great bulk must come from his own study of the patients that pass him day by day." (Figure 2)

In furthering his studies, Hertzler recognized the

need for an adequate library. Accordingly, early in his practice he began his collection by purchasing \$3,600 in books in one order, including 44 complete files of journals. His library grew until at one time it consisted of 8,000 bound volumes, and 10,000 unbound. This amazing collection was considered to be the best private collection in the state, if not in the entire Middle West. Realizing that other physicians could benefit from his library, Hertzler, in 1923, offered to place a copy of his card catalog in the Kansas University Medical Library at Rosedale, and he made large donations of books to the school. In 1937 he disposed of the greater part of his library by giving it to the medical library of the University of Illinois. Hertzler explained the fact that he donated the books to Illinois and not to Kansas by pointing out that there were several medical schools and a great many physicians in the Chicago area, and the library would be of the greatest service there. There is, at the same time, reason to believe that Hertzler

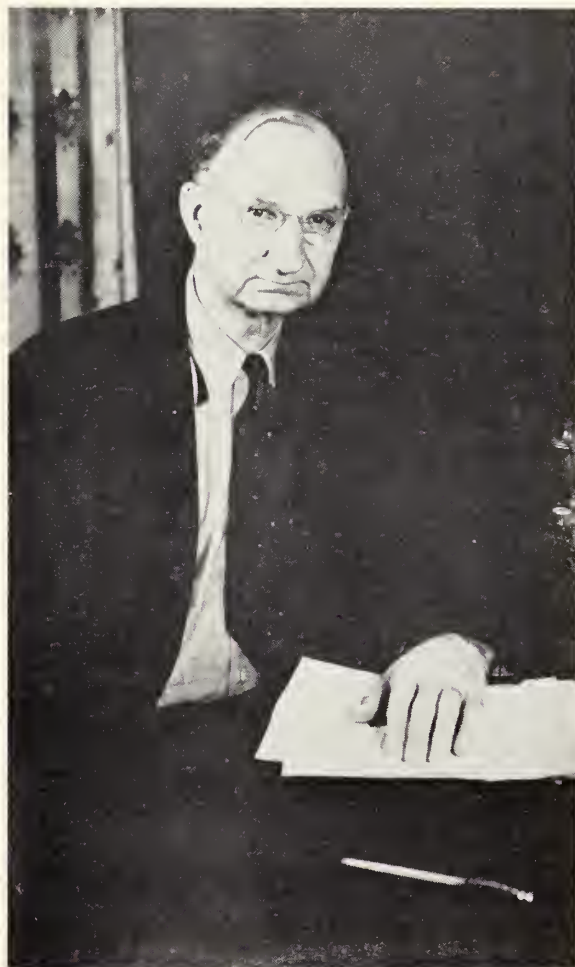


Figure 2. Hertzler in later life. Photograph taken in 1938.

may have been offended at this time in his relations with the University of Kansas School of Medicine, and that his action was at least partly a result of this conflict.

Besides collecting a magnificent library, Hertzler amassed a huge collection of pathology specimens, and in 1938 he gave the better part of these to the University of Kansas School of Medicine, where they are still utilized as teaching material.

His associations with the University Medical College and with the University of Kansas doubtless provided an added stimulus to Hertzler's studies. Quite the opposite of being "throttled" by the academic atmosphere, Hertzler thrived in it, and from his prolific pen there flowed an amazing array of books and scientific articles. Having published his first article in 1898, Hertzler proceeded to publish nearly 150 more during his lifetime. He further saw the publication of a total of 25 books, with another in manuscript at the time of his death. Many of these books ran to several editions. After writing his laboratory manuals, Hertzler's next book was *Surgical Operations with Local Anesthesia*. As mentioned previously, this was the first book of its type to be published in English. Based on his studies in Germany, he had initially published several articles on the subject, and it was not long before he came to be regarded as a world authority in this field. *Local Anesthesia* was eventually published in a total of six editions. The year 1912 also saw the publication of Hertzler's *Treatise on Tumors*, a volume which required eight years in its preparation. It was for this book that Hertzler acquired the services of an aspiring young illustrator from St. Louis, by the name of Tom Jones. Jones illustrated the tumor book, and thereafter worked closely with Hertzler in all his publications. He is presently associated with Illinois University. Following the *Tumor* book, Hertzler paid his debt to Virchow with the publication of his two-volume work, *The Peritoneum*. This was followed by a two-volume *Clinical Surgery by Case Histories* in 1921. In 1922, Hertzler published one of his most important works, *Diseases of the Thyroid Gland*, which only served to even more firmly establish his position of authority regarding this organ. The book was eventually published in three editions, and was written with the assistance of Dr. Chesky. In 1927, again with the aid of Dr. Chesky, Hertzler published his text on *Minor Surgery*, and in 1934 he and Chesky produced *Surgery of General Practice*.

The above mentioned works aided greatly in spreading Hertzler's fame, and encouraged by this success, he undertook his most ambitious task up to this point by writing a ten-volume set of monographs on surgical pathology, the first of which was published in 1930, and the last in 1938. In these vol-

umes he presented the results of a lifetime of experience, especially emphasizing the cases which he had treated over the years. He was aided by the fact that from his first patient he had preserved complete records, including photographs, slides, and gross specimens of every case. He had left standing orders, over the years, that everything pathological which could be seen should be photographed. With the brilliant assistance of Tom Jones to provide technical illustrations and to oversee the make-up of the volumes, the set of monographs provided a graphic record of his work.

Because of his university associations, Hertzler became known as a teacher, as well as a practitioner. Beginning with his work at the University Medical College, he made a conscious attempt to remedy the failings of education as he had encountered them in his own schooling. Following Waldeyer's philosophy, he emphasized the practical aspects of his subjects, and attempted to relate all basic sciences to clinical practice. As a professor, Hertzler was immensely popular with his students. His lectures crackled with his ready wit, although his coverage of the formal lecture material was haphazard and often less than inspiring. He refused to give examinations, or to grade them when they were given, and on at least one occasion he took the entire class to a baseball game in lieu of a final examination, contending that any teacher worth his salt should know how his students were progressing without formal testing. At Halstead, he established a program for residents and interns, and in addition, provided the opportunity for undergraduates to spend parts of their summers there. Here the students found themselves treated royally, with the opportunity given to observe Hertzler's brand of enthusiastic medicine close at hand. As a final token, he gave every graduating senior a complete set of his monographs on surgical pathology.

Although the distance between Kansas City and Halstead presented a travel problem, Hertzler continued to travel to the city weekly, even after he had completely given up his practice there, and until travel conditions in World War II made such trips impossible, he continued to give regular lectures. He was always ready to serve the university in an advisory capacity, and throughout his life he was actively interested in the state of medical education.

Possessed of the many and varied skills already mentioned, and being of such unquestioned ability that he was, perhaps, without peer as a surgeon in the Middle West, the question must logically arise as to why Hertzler chose to sacrifice the opportunities offered by the large metropolitan area of Kansas City in favor of practice in a town of barely a thousand population. There is no doubt that even when his practice was still mainly in Kansas City, his main

interest lay in Halstead. Many factors must be considered, and perhaps all have merit. Hertzler himself suggested that his early childhood left him better suited for rural life. "After long consideration," he wrote, "it becomes obvious to me that where I belonged was in the wide-open spaces from whence I came. I was smart enough to know that the odor of saddle leather would never leave me. So I wisely resolved to fight it out alone."

Over and above his enjoyment of country life, Hertzler's early horse-and-buggy practice had made him realize the need which existed for good medical care in rural areas. "If a state were to be allotted ten high class surgeons by Fate," he argued, "it would be conducive to efficiency to establish ten stations at opportune points. It would make for the short haul for those able to travel and it would place efficient service within reach of the injured and acutely sick."

Another factor must be considered. Hertzler's brand of medicine was enthusiastic, and in many aspects, controversial, as for example, his decision not to wear a mask in surgery. In the country he found it possible to build his medical center as he wanted it, to provide efficiency and good service as he believed them to be, free from the conventions of medicine in the city. "The small town has its compensations," he wrote. "Responsibility and freedom of thought and action are stimulants to work such as cannot be obtained anywhere else."

These were doubtless Hertzler's main considerations. However, they are not all the possibilities. It has been suggested that at the same time that he felt the call to the country, he also became disgusted with the practice of surgery as he saw it in the city, especially with the flamboyance and pride of city surgeons who knew little of the finer aspects of anatomy and pathology. It is not an exaggeration to say that Hertzler was not always popular with his medical colleagues. Possessed of brilliant talents as a surgeon, he was inclined to be less than tolerant of those less well endowed. He became noted for his frank and outspoken opinions, and he never hesitated to fight, as he had done in his youth, for principles and practices in which he believed. He often ridiculed medical practices or beliefs with which he did not agree. One of his chief foes was the disease "chronic appendicitis," and his efforts were in the van of those who worked to destroy the concept of this mythical ailment. "About this phantom," he wrote, "have been waged my most vehement combats, in the end rivaling the violence of a crusader in a religious war." He opposed fee splitting and the high charges for medical care. He attacked regimentation, taxes and the "New Deal." His criticisms were often blunt, and often vitriolic. At the same time, he became

famous for his ready wit, and many a salient point which he made was couched in humor. Occasionally, however, it must be admitted that his comments and criticisms were needlessly harsh, and his wit occasionally approached sarcasm.

Those who knew Hertzler best regarded him as a very sensitive man. Although often appearing gruff and tactless, he was at the same time easily offended. Thus, to his friends, his close associates, his students, and his patients, he was regarded as a person of utmost kindness. He was generous to a fault, and always willing to give of himself whenever the need arose. But at the same time, he was well aware of his own abilities, and this fact, coupled with his competitive and outspoken nature, often made him enemies. He was often blunt and tart with his fellow physicians, and it cannot be denied that friction of personalities, tempered with no small amount of professional jealousy, caused Hertzler to be less than popular with many of his own profession.

Hertzler's difficulties with other members of the medical profession stemmed from two other problems as well. First were the low fees which Hertzler charged. Early in his practice he established the rates which went unchanged during his lifetime. He charged no more than four dollars a day for the patient's room and nursing, and no more than \$150 for any operation or series of operations in any one hospital stay. It was an honest attempt to reduce the high cost of medical care, and he made a point never to inquire whether or not the patient could pay before he did the surgery. He did a great deal of charity work. Occasionally, of course, advantage was taken of his generosity, but the important result was that he won the respect and admiration of his patients. Numerous physicians, however, regarded his fees as attempts to undercut their own.

In the second place, Hertzler, in his competitive way, was not always quick to send patients back to the referring physicians, and this aroused the wrath of a number of other medical men. Hertzler was, on at least one occasion, attacked at the meeting of the State Medical Society, and some members attempted to have him ousted from the society. Hertzler reacted in typical style, saying he would welcome a fight. Powerful and influential friends rallied to his cause, as did the majority of reputable physicians, and the issue was eventually dropped. Professional jealousy was most certainly the motivating factor of these attacks, and most physicians preferred to react as Dean Sudler of the Kansas University Medical School did, when he wrote, "Up here we regard Dr. Hertzler as a very capable and able surgeon. We are willing to admit that he has some of the peculiarities that go with genius but we have never heard his character assailed or attacked."

Generally speaking, however, Hertzler's opinions were greatly respected and widely sought. For years his appearances at the Jackson County Medical Society meetings were anticipated eagerly, and the *County Medical Bulletin* once reported, "The local members of the medical profession eagerly anticipate the first Tuesday of each month, when 'Pa' comes to town and the 'country doctor' turns the fluoroscope on the debatable diagnostic problems of his city brothers. . . . He is the chief justice of the Supreme Court of Pathologists. When his opinion is handed down there is very little argument, and from it there is no appeal." High praise, indeed!

Because of the controversies which surrounded him, his unquestioned abilities, his frank and outspoken manner, and his ready and biting wit, Hertzler became regarded as a colorful and energetic figure. During his lifetime he received many honors, including the LL.D. degree from Washburn College in 1902, Ph.D. from Illinois Wesleyan in 1903, selection as a fellow of the American College of Surgeons in 1913, fellowship in the American College of Anatomists in 1938, the LL.D. degree from Southwestern College in 1939, the Sc.D. degree from Boston University in 1939, and the Lit.D. degree from Bethel College in 1940.

Hertzler's personal life verified his colorful reputation. He operated seven days a week, generally arising at 4:00 or 4:30 a.m. to go to his farm or to make the rounds of patients before surgery. His work during the day was interspersed with occasional naps. His writing was always done at night, generally after 11:00 p.m., with all manuscripts being written in longhand, which his secretary, Mrs. Ruth Rose, would type the next day. His technique in writing included stringing the photographs, hospital records, and other pertinent material on a clothesline in his room, where he could review a number of cases at once while he described them.

Hertzler was married three times. His first marriage, mentioned earlier, was to Myrtle Arnold, in 1894. Three daughters, his only children, were born to this union before it ended in divorce. His second marriage was to Edith D. Sarrasin, on July 30, 1909, but this marriage, too, ended in divorce. Hertzler's last marriage was to Dr. Irene A. Koenke, of his clinic, the marriage not terminating until Hertzler's death. Dr. Koenke continues to practice surgery at the clinic at Halstead.

Hertzler's chief diversion from his medical work was shooting, and for several years around 1930 he was the national champion of the U. S. Revolver Association. His interest in guns began in his youth, when he acquired a small muzzle-loading pistol, and during his horse-and-buggy days he made his country rounds armed with his Colt "Peacemaker," which he fired to pass the time. It is interesting to note that

Hertzler's first scientific article, published in 1898, dealt with his modification of the "Murphy Button," used in intestinal surgery, by the use of exploded pistol cartridges! His collection of guns eventually numbered 150 rifles and 110 hand guns, which he fired often, spending an hour or so at practice nearly every evening. He encouraged marksmanship among law officers, providing ammunition and practice areas for members of the nearby police forces, and each year he awarded a hand gun as a prize to the winner of the Kansas Peace Officers Association's yearly shoot. He disposed of much of his collection, however, after breaking his ankle in 1929, when he found his accommodation ability was hindered by his having to fire from a swivel stool. His interest, however, did not flag, and it was often observed that if a patient came in and "talked guns" with Hertzler, his card was certain to bear the notation "no charge." Besides guns, Hertzler was interested in all sports, especially baseball, which he watched whenever possible.

Throughout his life, Hertzler was always fond of children, and he never missed an opportunity to please a child. As he grew older, he began his "milk route" by carrying candy to the children of Halstead each afternoon at four o'clock. He was often to be seen at the evening band concerts in Newton, where he regularly provided ice cream and soda for all the children present. He took an active interest in the Methodist Children's Home in Newton, even to the point of playing "Santa" at Christmas. He was an active booster of the local Scout programs.

The great tragedy of Hertzler's life came in 1925, when his daughter, Agnes, died following surgery. Agnes had been the light of Hertzler's life, and had followed in his footsteps, taking the M.D. degree at Kansas in 1920. She was practicing with him at the clinic in Halstead at the time of her death. It may be said that Hertzler never fully recovered from this loss. He named his clinic in her memory, and throughout his life the brooding memory of her was always very close. It is possible that this might help to explain the insomnia and migraine headaches which tormented him in his later years.

In the year 1938, at the age of 68, and with the greater part of his life's work behind him, Hertzler entered the field of popular literature with the publication of his autobiography, *The Horse and Buggy Doctor*. In many ways, this book was the crowning glory of his career. An instantaneous success, the book went to 45 printings for the Book-of-the-Month Club, and an equal number for sale on the book shelves. London and Swedish editions of the book were released the next year, and soon after the book was published in two German translations, in French, Spanish, and fifteen oriental languages. The book was even adapted for a radio play, with Lionel Barry-

more portraying the "Doctor." The "hoss book," as Hertzler liked to refer to it, was originally begun at the suggestion of a daughter, and was to be an impersonal account of the changes he had seen take place in medicine. It was to be privately published. However, the publisher prevailed upon him to make the volume a personal history, and even went so far as to suggest the title.

The result was a book which "blazed like a comet across the literary sky of 1938." Here was the story of the early struggles of a country doctor, with an eloquent defense of country medicine and the ordinary people for whom it was practiced. It was filled with Hertzler's enthusiasm and wit, and the *Saturday Review* reported, "...we find a fascinating self-portrait of an old scientist who is as tough and gnarled as a sassafras root, with the same homey bitterness in the bite of his wit." Suddenly, Hertzler found himself a national figure and the toast of the literary world. Whereas his fame had previously been limited to predominantly medical circles, he now had popular readers numbering in the thousands. He was wined and dined by many literary societies, and he received invitations to speak from thousands of organizations. Through it all, Hertzler maintained the pose of a simple country physician, but he was stimulated to attempt more literary works. Perhaps the weakest point of Hertzler's book came when he attempted to express his philosophy. As one eminent reviewer stated, "Occasionally, of course, Dr. Hertzler nods. When the horse and buggy doctor gets out of the peritoneal cavity into sociology and begins launching out at the New Deal there are moments (or so it seems to us starry-eyed brethren) when he gets the tail over the dashboard and its hairs twisted around the whip socket."

Stimulated by his success, Hertzler followed with *The Doctor and His Patients*, where he mainly concerned himself with his philosophy of female problems and divorce. This book did not meet with the success of *The Horse and Buggy Doctor*, although it did run for six printings. The reviewers received the effort with less than enthusiasm.

Hertzler's philosophic bent was not sated, however, for he now launched into *The Grounds of an Old Surgeon's Faith*, privately printed in 1944. In this book, subtitled "A Scientific Inquiry into the Causes of War," he expressed his skepticism of formal religion, and his belief that all war is in vain, a conviction he had often expressed on previous occasions. This was followed by *Ventures in Science of a Country Surgeon*, in which Hertzler described his scientific investigations, and added more of his philosophy and wit. After this came *Always the Child*, privately published in 1945, which was his last book. Another book, *The Doctor Speaks His Mind*, was in manu-

script at the time of his death, and remains unpublished.

After the resounding success of *The Horse and Buggy Doctor*, Hertzler's later efforts were rather anti-climactic. His popular writing was at its best when he described his personal remembrances, but failed when he entered the nebulous field of philosophy. Nevertheless, the books provided a valuable record of Hertzler's motivating thoughts, and insight into his personality.

Although stimulated by his literary success, Hertzler began to slacken the pace of his medical work in his later years. In 1942, because of wartime travel conditions, Hertzler was forced to abandon his practice of making regular excursions to the medical school in Kansas City, and in 1943 he had to give up even occasional trips. His practice in Halstead, however was still strong, and he described himself as doing sixteen operations a day and writing five hours each night. In 1944, however, he complained, "For the first time in 40 years I am without Ms (manuscript) on my desk and I cannot sleep. To do nothing is worse than working." In April, 1944, Hertzler was made professor emeritus of Surgery at Kansas University School of Medicine, and in 1946 he began to look forward to an active retirement. On February 25, 1946, he officially retired with the following notification to his nurses:

My dear girls:

Old Grandpa has retired. Fifty-two years, seven days a week is all I had. Henceforth I will keep house for Doc (Dr. Koenke) and bathe the dawg. I may plant some onions and beans.

Few beans were to be planted, however, for on Thursday, September 12, 1946, Arthur Emanuel Hertzler died, at the age of 76. Dr. Chesky reported that his death was due to heart failure and uremia. It was fitting that his funeral, on September 15, was conducted by his childhood friend, Rev. C. E. Krehbiel, who had previously conducted services for Agnes Hertzler in 1925, and for Hertzler's mother in 1929.

Hertzler's life was his greatest tribute. Emerging from a hard and troubled youth, he brought to rural Kansas medical care which rivaled that to be found anywhere. Widely known for his medical genius, he achieved world renown for his simple philosophy and warm humor. Restless and impatient, blunt and often tactless, outspoken and competitive, he symbolized a vanishing race of self-sufficient country physicians. His spirit still lingers in those who knew him, and the work which he started is carried on in his clinic today.

EDITOR'S NOTE: References may be obtained by writing the JOURNAL, 315 West 4th Street, Topeka, Kansas.



Uremia, Glycosuria and Hypophosphatemia

Case Presentation

This eight-year-old white girl was admitted to KUMC for the seventh time on July 31, 1959, with a chief complaint of rapid breathing.

The child had been followed at this hospital since her illness was first discovered when she was one year old. At that time her twin brother had recently died of an unknown illness which had been characterized by emesis, dehydration, failure to thrive, acidosis, and glycosuria. Although she was asymptomatic she was hospitalized for thorough evaluation, and it was discovered that she had a severe acidosis, moderate glycosuria, hypophosphatemia, hyperchloremia and elevated alkaline phosphatase. She also developed epistaxis and hematemesis.

She was admitted for the second time at the age of 16 months for evaluation, and at that time she had minimal glycosuria, hypophosphatemia, persistent acidosis, and a urinary tract infection which was readily corrected by antimicrobial agents. She was discharged to the family's care.

Her third admission was at the age of 28 months and was because of persistent polydipsia and polyuria. Laboratory studies revealed albuminuria, hypophosphatemia, minimal acidosis and crystal deposition in the bone marrow and in both corneae.

She was admitted for the fourth time at six years of age because of photophobia and muscular weakness in her lower extremities. At that time the specific gravity of urine was low; there was albuminuria and a trace of glycosuria. Crystaluria, hypophosphatemia and hypokalemia were also present. The muscle weakness improved with treatment.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the proceedings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

She was admitted for the fifth time on April 27, 1959, because of anemia which had been resistant to therapy including blood replacement. At that time her hemoglobin was 8.4 gm. per cent; hematocrit, 24; reticulocyte count, 1.8 per cent and the bleeding time was 52 minutes. The blood urea nitrogen was elevated. During her hospitalization she had repeated epistaxis.

Her sixth admission was on July 15, 1959, and was precipitated by emesis, persistent anorexia and recently developing tachypnea. She was semi-comatose, hypertensive, tachypneic, edematous, and had hepatosplenomegaly. The hemoglobin was 6.7 gm. per cent; hematocrit, 20.5; BUN, 66 mg. per cent and CO_2 , 8.5 mEq. per liter. She was given sodium lactate and whole blood intravenously. She improved considerably and was released to the care of her family after four days.

The mother's prenatal course had been normal, and the baby was the first-born of fraternal twins. Her birth weight was 5 lb. 1 oz. and her neonatal course was normal. She had become anorexic when she was one year old, and was markedly so during the last year of her life. She had been taking special diets during most of her life. Her routine immunizations were complete. She had no allergies. She had had pertussis, rubeola, roseola, scarletina and varicella. She had had no operations or injuries.

In 1938 a sibling died of osteomyelitis at six months of age, and the patient's fraternal twin died at 19 months of age of an undiagnosed illness which had been characterized by anemia, glycosuria, hepatosplenomegaly and "undeveloped long bones." Her mother, father, and two older siblings were living and well. There was no other history of familial illnesses.

General growth retardation was noted when she was one year old, and she had had photophobia and visual impairment together with repeated epistaxis

since she was six years old. Progressive tachypnea was noted four days before her admission to this hospital. She had had anorexia and repeated bouts of emesis as well as chronic constipation, polyuria and polydipsia since she was one year old.

The patient was acutely ill, pale, semi-alert and conscious. Her blood pressure was 160/100; temperature, 98.0° F., rectally; pulse, 140 per minute and regular; respiration, 40 per minute of the Kussmaul type. Her height was 43 inches, and she weighed 47 pounds. Her eyes and fundi were normal. The ears, nose and throat were normal except for dry blood in one nostril. The neck was normal. The chest was symmetrical, and expansion was equal. The lung fields were clear to percussion, but moist inspiratory rales were heard in both bases. There was a sinus tachycardia, but no cardiomegaly. A grade II apical systolic murmur was present. The liver was palpable 5 cm. below the right costal margin. There did not appear to be any free fluid in the abdomen. The genitalia were normal. The musculoskeletal examination was negative, and neurological examination was within normal limits.

The specific gravity of the admission urine specimen was 1.007; pH, 5.0; albumin, 2 plus; glucose, faint trace; and no abnormal elements in the sediment. Repeat urinalyses were essentially unchanged. On admission the hemoglobin was 10 gm. per cent; hematocrit, 30 ml. per cent; white cell count 12,150 with 80 per cent polymorphonuclears (73 per cent filamented and 7 per cent non-filamented), 19 per cent lymphocytes and 1 per cent monocytes. On August 3, 1960, the hemoglobin was 6.83 gm. per cent, and the hematocrit was 19 ml. per cent. On admission the BUN was 136.5 mg. per cent; CO₂, 4.6 mEq.; serum sodium, 138 mEq.; potassium 4.5 mEq.; and chloride, 109 mEq. per liter. On August 3, the BUN was 208 mg. per cent; CO₂, 9.2 mEq.; serum sodium, 140 mEq.; potassium, 103.6 mEq.; and chloride, 98 mEq. per liter.

Shortly before her admission to the hospital the patient was digitalized by her family physician, and she showed considerable improvement. Throughout her hospital course she was unable to take oral feedings, and was maintained with parenteral fluids. On August 1 she developed generalized grand mal convulsions which were controlled with rectal tribromoethanol. On August 2 she became semi-comatose, and by August 3 she was unconscious. Her last five hospital days were characterized by unconsciousness, fever, occasional episodes of twitching and mild convulsions. On August 8 she slowly ceased to breathe and died.

Dr. Delp (moderator): Are there any questions of Dr. Orthwein?

Claude Kenyon (student*): Did she have a fever during the last five days?

Dr. Charles F. Orthwein (resident in pediatrics): No, I believe not.

Victor McCall (student): Were amino acids ever demonstrated in the urine?

Dr. Orthwein: Yes, there were.

Richard Shaw (student): Was there any history of salicylate ingestion?

Dr. Orthwein: No.

William Schlotterback (student): Was a BUN done on the first admission?

Dr. Orthwein: Yes, and it was not elevated.

James Kelley (student): What was the white count during the last five days?

Dr. Orthwein: There was one done the day before her death; it was 12,150 with 80 per cent polys.

Robert Vance (student): Was there any history of consanguinity?

Dr. Orthwein: No, there was no such record.

Mr. McCall: Do you have any serum calcium levels? Preferably those early in the course.

Dr. Orthwein: Yes, quite a few. On the second admission they were 5.6, 4.9, and 5.2 mEq. per liter. Later they were 5.2 and 5.6 mEq., but towards the latter part of the hospitalization I do not believe any were taken.

Mr. Kelley: Were the crystals identified in the bone marrow and corneal scrapings?

Dr. Orthwein: No.

Mr. Kenyon: Was any basophilic stippling of red blood cells noted?

Dr. Orthwein: Not that I know of.

Mr. McCall: What was her urinary output in the last five days?

Dr. Orthwein: About 1,100 ml. was the largest amount. It was 450, 500, 200, 150, and 100 for the last five days.

Mr. Schlotterback: Were any alkaline phosphatase determinations done after the first admission?

Dr. Orthwein: Yes, and they were normal.

Mr. Shaw: Were there any unexplained fevers in her first year and a half?

Dr. Orthwein: No history of such.

Mr. Vance: Were the liver and spleen palpated on the first admission?

Dr. Orthwein: I do not believe so.

Mr. Schlotterback: What type of anemia did this patient have?

Dr. Orthwein: It was hypochromic.

Mr. McCall: Did she have any history of exposure to any type of heavy metals?

* Although a student at the time of this conference in November, 1960, he, like the others referred to as students, received the M.D. degree in June, 1961.

Dr. Orthwein: No.

Mr. Vance: What about the blood sugar determinations?

Dr. Orthwein: They were normal.

Mr. Shaw: Did she have any history of having received excessive amounts of vitamin D?

Dr. Orthwein: No.

Mr. Kelley: Were any glucose tolerance tests done?

Dr. Orthwein: No.

Mr. Kelley: Was a platelet count done?

Dr. Orthwein: One platelet count was 31,000 or thereabouts. The examination of the bone marrow showed normal looking megakaryocytes.

Mr. Vance: Were there any nervous system manifestations before the convulsions?

Dr. Orthwein: No.

Mr. Shaw: Was she retarded physically or mentally?

Dr. Orthwein: Yes, physically but not mentally.

Dr. Delp: Mr. McCall, let us see the electrocardiograms.

Electrocardiograms

Mr. Victor McCall: The first EKG that was taken was in 1952 when the patient was one year old. The rate was about 180 with a sinus tachycardia. The P-R interval is approximately 0.08 seconds, which is also normal for this rate. The P waves are upright in leads I, II, and AVF which indicates a sinus rhythm. The electrical axis is approximately plus 70 degrees. The T waves are inverted in the precordial leads in V 1 and V 3 and slightly flattened in V 5.

The next tracing was made when the patient was eight years old (*Figure 1*). There is a sinus tachycardia with a rate of about 140. The P-R interval is approximately 0.12 sec. which is normal for this rate. The P wave is upright in I, II, III, and AVF, again indicating a sinus rhythm. The electrical axis is approximately plus 90 which is the upper limits of normal. In the precordial leads the T waves are slightly depressed which could easily be due to a hypokalemia. The terminal S-T segments are depressed in lead 2 and questionable in lead 3. We could postulate that this is possibly due to a digitalis effect. I say that this EKG is slightly abnormal, and the findings are due to the digitalis effects.

Dr. Delp: All right, let's have the x-rays.

X-Rays

Mr. Richard Shaw: There are no soft tissue abnormalities in the skull film taken during the first year of life. I feel that this probably is a normal sella for this age. There is some question whether the lamina dura is intact around some of the teeth. The

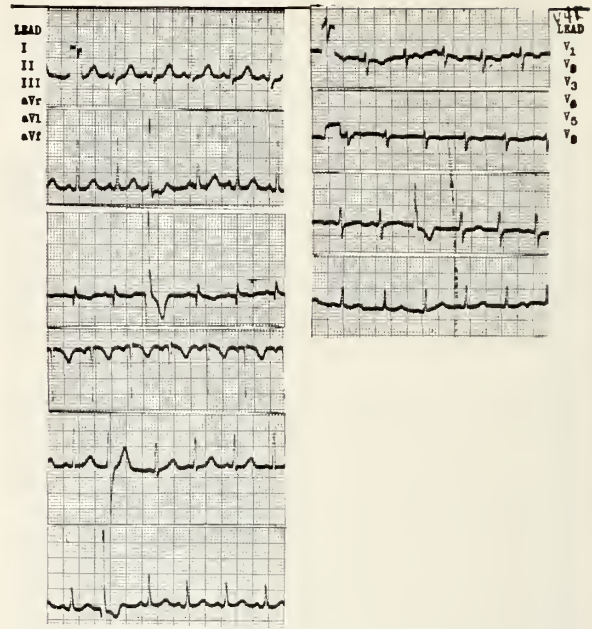


Figure 1. Electrocardiographic tracing made April 18, 1957.

suture lines are normal. In this skull film I see no abnormality. The KUB film shows no soft tissue abnormalities, and the gas patterns are normal. In the chest film the mediastinum is normal in size. The heart is of normal size and contour. There is no hilar infiltration. The costophrenic angles are clear as are the lung fields. No bony abnormalities are seen in the breast cage. Films of the long bones (*Figure 2*) show a slight roughening of the metaphyses, especially of the femur. Films made in 1959, four years later, show a repair of this roughening. They also show a retardation of ossification of the carpal and



Figure 2. X-ray of long bones showing metaphyseal cupping and fraying.

the epiphyses. I interpret these films as being evidence of rickets that has been somewhat corrected in the intervening years, but there remains a retardation of growth and development of the long bones.

In the chest film made in 1957 the soft tissue shadows are normal. The mediastinum, heart, and lung fields are normal; and the costophrenic angles are clear. There is no cardiomegaly. The spleen and kidney shadows are not visible. In 1959, on her last admission, there is cardiomegaly and hilar infiltration, and the abdominal film shows hepatomegaly and splenomegaly. I interpret this final film as showing probably uremic pneumonitis. She could also have congestive heart failure, hepatosplenomegaly, and congestion in the lung fields.

Dr. Delp: Did you think this was uremic pneumonitis, Dr. Tice?

Dr. Galen M. Tice (radiologist): Yes, I thought it was.

Dr. Delp: Did you think the heart was enlarged?

Dr. Tice: Yes.

Dr. Delp: Thank you Mr. Shaw. Now, Mr. Kenyon, we want your differential diagnosis.

Mr. Claude Kenyon: Our problem in this conference is that of an eight-year-old white girl who entered this hospital July 31, 1959, for the final time. She was first seen here at the age of one year when she entered for an evaluation following the death of her fraternal twin. At that time she was found to have acidosis, glycosuria, hyperphosphatemia, hyperchloremia, and an elevated alkaline phosphatase. At the age of 16 months she was readmitted with persistent acidosis, hypophosphatemia, glycosuria, and a urinary tract infection. By the age of 28 months she had developed polyuria, polydipsia, and albuminuria. Laboratory studies at that time revealed crystal deposition in the bone marrow and in the corneae. At the age of six she was readmitted with complaints of muscular weakness, and photophobia. At that time she had a low specific gravity of the urine with crystalluria; hyperkalemia was also noted. At the time of her fifth admission she had a marked anemia, an increase in bleeding time, and an increased BUN. Her sixth admission later the same year was precipitated by emesis, anorexia, and tachypnea. At that time she was found to be hypertensive, edematous, uremic, and anemic. Her final admission was July 31, 1959, when she had Kussmaul's tachypnea, mental dullness, and hypertension. She was unable to take food by mouth at that time; and two days after admission she had a grand mal convulsion, lapsed into unconsciousness and continued to have convulsions. She had fever for the last five days, at the end of which time she died. Her family history is interesting. Her fraternal twin died with symptoms of emesis, dehydration, failure to thrive, acidosis, glycosuria. A 19-month-old sibling

had also died with anemia, glycosuria, and hepatosplenomegaly, and "underdeveloped" long bones. I will base my differential diagnosis on the causes of renal failure associated with acidosis, glycosuria and hypophosphatemia, resulting in death by the age of eight.

First, I shall consider the infectious diseases. Infectious diseases of the kidney include glomerulonephritis, interstitial nephritis and pyelonephritis. These usually have an acute onset with fever and urinary symptoms except in the case of glomerulonephritis which might be chronic in onset. Our patient had no symptoms of repeated urinary tract sepsis, and these infectious diseases usually do not give rise to glycosuria, acidosis and hypophosphatemia. Nephrosis causes renal failure, but it is not compatible with the clinical picture or the laboratory findings in this case. Neoplastic diseases will be considered briefly because of their ability to cause renal failure by deposition of crystals in the kidney by infiltration of the parenchyma. These are ruled out by the age of onset and by the lack of physical and laboratory findings. Vascular diseases such as renal vein thrombosis and the dyscollagenoses are eliminated by the age of onset, lack of a typical clinical course, and the rarity of these conditions in children. Toxic agents will also be considered because of the number of agents which will cause kidney damage leading to a renal failure with laboratory findings similar to those present in this case.

Prolonged treatment with acidifying salts and acetazolamide will also produce hypochloremic acidosis. This can be ruled out by the lack of history of treatment with these agents. For the same reason we rule out sulfonamide and salicylate poisoning.

The milk-alkali syndrome can also mimic primary hyperparathyroidism and give rise to secondary renal damage. After prolonged ingestion of excessive milk and alkalis these patients exhibit hypercalcemia with hypercalcuria or hyperphosphatemia, marked renal insufficiency, calcinosis, and a mild alkalosis. This syndrome may be ruled out because our patient had hypophosphatemia and acidosis. Vitamin D intoxication produces a pathologic picture similar to hyperparathyroidism. Symptoms include fatigue, weight loss, vomiting, impaired renal function and metastatic calcification, particularly in the conjunctiva and the cornea. This is excluded because of the lack of a history of massive D vitamin intake before her first admission and because of the lack of a typical clinical course.

Heavy metal poisoning has been found to produce a urinary symptom complex similar to that found in this patient, but I rule this out because our patient never showed the encephalopathy, the peripheral neu-

ropathy, typical x-ray findings, or the blood picture that is characteristic of heavy metal poisoning.

Metabolic diseases such as diabetes mellitus must be considered because this patient had glycosuria, acidosis and eventual involvement of her kidneys. This is ruled out by the normal blood sugar and early onset of kidney failure. Hyperparathyroidism may be present with symptoms of weakness, anorexia, nausea, constipation, polyuria and polydipsia due to the renal disease with calcium and phosphorus excretion. This is ruled out because of the absence of renal calculi, the presence of glycosuria, the rarity of this disease in children and the presence of crystals in the bone marrow and cornea.

Amyloidosis must also be considered because of its frequent involvement of the kidney. This is ruled out on the lack of history of a chronic disease preceding the onset of her symptoms, the age of onset and the other typical findings of this disease.

Congenital structural defects of the kidney should also be considered. Polycystic disease of the kidneys is known to have a familial tendency, but is dismissed because of the absence of a mass and the early onset of failure which is not common in this disease. Gross malformations of the kidney and urinary tract are usually symptomatic during the first year of life with repeated infection and unexplained fever. Our patient did not exhibit any of these symptoms. A symptom complex known as the Butler-Albright syndrome must also be considered. These patients present as children with hypochloremic acidosis, polyuria, polydipsia, hypophosphatemia, and rickets. They develop bilateral nephrocalcinosis with a deposition of calcium in the basement membrane of the glomeruli and in the renal tubules which can usually be demonstrated by x-ray. I exclude this syndrome too because this entity lacks familial tendencies, and is not associated with corneal crystals or crystals in the bone marrow.

Hereditary diseases will be the last group I shall consider. Galactosemia causes a clinical picture of nausea, vomiting, poor growth, hepatosplenomegaly, and renal insufficiency with an acidosis and albuminuria. This is excluded because of the lack of a history of jaundice, lack of mental retardation, and because this disease usually presents when the patient starts taking milk. Glycogen storage diseases, hypophosphatasia, Wilson's disease, and phenylketonuria may have many symptoms similar to those of our patient such as glycosuria, acidosis, hepatosplenomegaly, albuminuria, nausea, vomiting, and poor growth. These patients may also have amino acids in their urine, but seldom present with the renal involvement that this patient had, and never exhibit crystals in the cornea and bone marrow.

At this time I should like to discuss Lignac-Fan-

coni's disease which I believe this patient had. In 1944 Lignac described three cases in children which had dwarfism, severe rachitic deformities, albuminuria, glycosuria, polydipsia, polyuria, anorexia, constipation, vomiting, repeated attacks of fever and cystine crystals in many organs of the body. Earlier, in 1936, Fanconi had written a paper also describing a nephrotic, glycosuric dwarfing and hypophosphatemic rickets in early childhood. Later it was noted that these men were describing the same entity. While the findings are quite variable, the most consistent ones are dwarfism, cystine storage in the tissues, glycosuria, phosphaturia, and amino aciduria. It was shown that this disease is probably a genetic abnormality passed by a simple Mendelian recessive gene. The incidence of the disease is about one in every 40,000 people in the general population. It appears to be caused by an inborn error of metabolism. Cystine accumulation could conceivably result from a block anywhere in the metabolism of the sulfur-containing amino acids. Cystine is, however, not directly in the main metabolic pathway of these sulfur amino acids. It enters by being converted to cysteine, so a defective reduction of cystine to cysteine is the most probable site of the abnormality. A defect in this step would be difficult to circumvent by an alternative pathway. Due to their low solubility cystine crystals are deposited in the reticuloendothelial system, and they may be seen in the liver, kidney and spleen. They are usually seen in the cornea of the eye. There is also an abnormality of the proximal tubules in the kidney. This abnormality causes a loss of phosphate, sodium, potassium, bicarbonate, glucose, and amino acids. These are two theories for the production of this renal insufficiency that our patient demonstrated in the end. One of these theories is that cystine crystals are deposited in the renal tissue and produce a fibrosis which compromises the blood flow and the kidney function. The other theory is that cystine acts as a nephrotoxic substance, and it causes renal insufficiency in this way.

I believe that this is a case of Lignac-Fanconi's disease which progressed to renal failure. This patient was terminally in uremia with acidosis and died with central nervous system manifestations.

Dr. Delp: Thank you, Mr. Kenyon. Suppose we ask you to explain a few of the symptoms the patient had. First of all, Mr. Vance, why did this patient have photophobia?

Mr. Robert Vance: This was due to the cystine crystals in the cornea causing an abnormal diffraction of light.

Dr. Delp: Why did the patient have glycosuria?

Mr. Vance: Because of a defect in the renal tubules which caused an inability to reabsorb glucose.

Dr. Delp: There were reported to be some changes in the x-ray, Kelley. How do you explain those?

Mr. James Kelley: Because there is not reabsorption of phosphorous from the tubular filtrate, and this results in a low serum phosphorus which in turn is associated with acidosis which causes mobilization of calcium ions from the bone, loss of calcium in the urine and rachitic changes.

Dr. Delp: Mr. Shaw?

Mr. Richard Shaw: There is secondary hyperparathyroidism produced along with the acidosis, and both functions tend towards demineralization of bone.

Dr. Delp: Mr. Vance, Mr. Kenyon said that the crystals are deposited in the reticuloendothelial system. Can you explain why this occurs?

Mr. Vance: Some say because the crystals are phagocytized.

Dr. Robert W. Brown (internist): This should be differentiated from cystinuria which we have also in aminoaciduria of a little different variety, and which does not give rise to a clinical syndrome. Secondly, little has been said about the hepatosplenomegaly. It will be interesting to see if there is a full-blown or developing cirrhosis in this patient on the basis of the aminoaciduria. If it is present it will be interesting to see the length of time it has taken to develop.

Dr. Delp: Dr. Klionsky, would you present your findings now?

Dr. Bernard Klionsky (pathologist): External examination of the body at autopsy confirmed the poor state of development and nutrition. The body weighed 45 pounds and measured 43 inches in length. The only other external abnormality was a typical "rachitic rosary."

The kidneys were the most strikingly abnormal organs. They were extremely small, contracted and coarsely granular, and each weighed 22 grams, which is about one-third of the expected weight for a child of this age. On section the cortex was pale, greatly shrunken and poorly demarcated from the medulla. The spleen, liver and lymph nodes were slightly to moderately enlarged and on their cut surface they all showed a diffuse, fine, white stippling. The heart showed left ventricular hypertrophy.

Microscopic study showed the typical lesions of cystinosis or cystine storage disease or Lignac's disease. Small rectangular, hexagonal or round birefringent crystals of cystine were found in almost all organs examined, but were most numerous in the spleen, lymph nodes, liver and kidneys (*Figure 3*). They were usually distributed in compact clusters and were almost all intracellular, although small numbers lay free in the stroma. The intracellular crystals were all within reticuloendothelial cells; none were found within parenchymal cells. Only occasionally had they

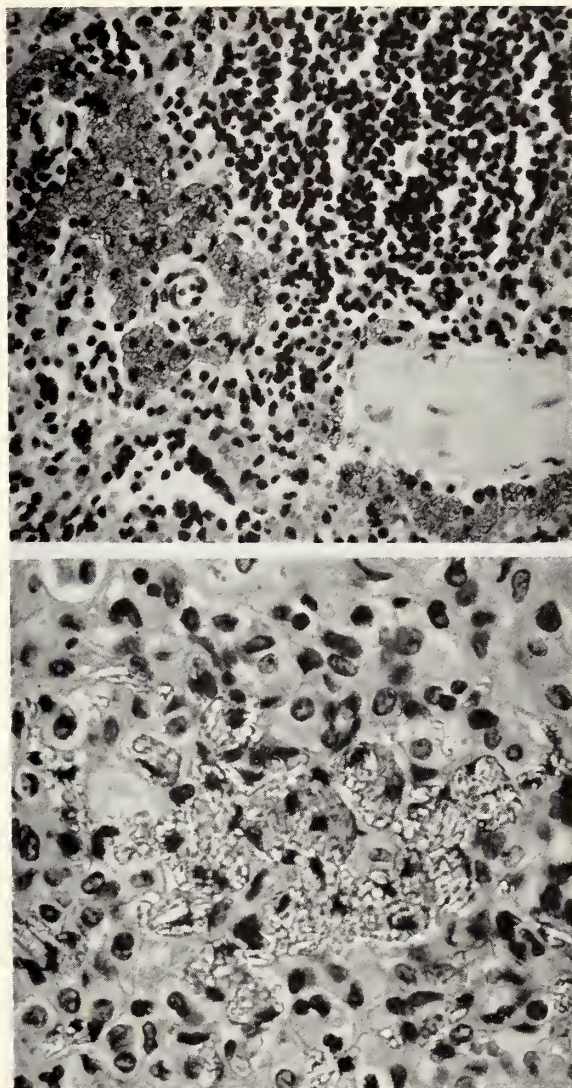


Figure 3. Cystine crystals in the spleen (top, $\times 300$) and kidney (bottom, $\times 500$). Tissues fixed in absolute alcohol. H and E.

elicited a mild chronic inflammatory response, but no foreign body reaction. Rare crystals were found within glomerular tufts. When the cystine crystals were treated with strong hydrochloric acid characteristic needles of cystine hydrochloride were formed. This is the Wollaston test.

It should be emphasized that the crystals are readily soluble in acid fixatives such as unbuffered formalin and frequently require special fixation for their demonstration. Absolute alcohol was used in this case. In sections of formalin fixed tissues, the crystals have disappeared, leaving large foamy histiocytic cells suggestive of the reticuloendothelioses or lipid storage diseases (*Figure 4*). Indeed, this was the initial impression in the investigation of this patient's sibling.

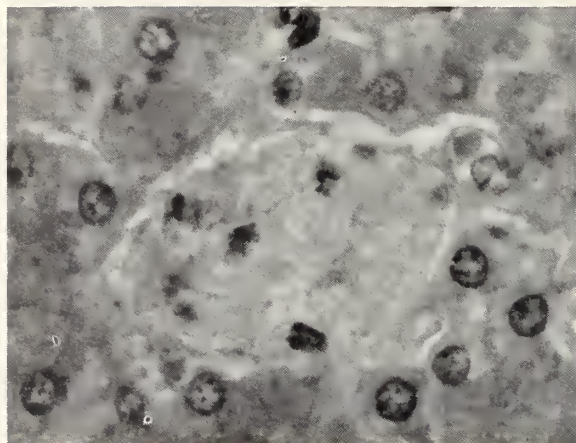


Figure 4. Cluster of large, foamy histiocytic cells in the liver after cystine crystals have been dissolved in unbuffered formalin. $\times 800$. H and E.

A lipid storage disease was considered most likely until fresh tissue was examined under polarized light and the crystals were discovered. When cystinosis is suspected, therefore, alcohol fixation or direct examination of fresh frozen sections under polarized light is recommended.

The kidneys were notably altered. Glomerular changes included endothelial swelling and proliferation, thickening of capillary basement membranes progressing to complete hyalinization of glomerular tufts and fibrosis of Bowman's capsules. No completely uninvolved glomeruli were found; the majority were totally hyalinized. Tubules were severely atrophic. Some tubules were distended by brightly eosinophilic casts; a few of these tubules had ruptured, resulting in a focal granulomatous reaction. There were interstitial fibrosis and chronic inflammation. Subendothelial and medial proliferation were noted in arterioles and small arteries (Figure 5).

The kidney changes in cystinosis are progressive. This case illustrates the most advanced stage. Earlier changes, as exemplified by this girl's brother, consist of interstitial edema, slight interstitial lymphocytic infiltration, granular, fatty or vacuolar degeneration of tubular epithelium, and endothelial swelling and ischemia of glomerular tufts. Intermediate stages have been described in other cases.

A section through a costochondral junction showed thickening and an irregular, disorderly arrangement of the cartilage and deficient calcification (Figure 6). The appearance is that of healing rickets.

A single parathyroid gland was available for microscopic study. Its size was within normal limits, but microscopically the cells were very compact. They were all of a clear chief cell type (Figure 7). I believe this was early secondary parathyroid hyperplasia.

A finding unrelated to the main disease process

was multiple granulomas in the tracheo-bronchial lymph nodes. No organisms could be found within them, and their etiology is unknown.

The pathogenesis and nosologic position of cystinosis remain in dispute. The only point of agreement appears to be that it is an "inborn error of metabolism," probably inherited as an autosomal recessive

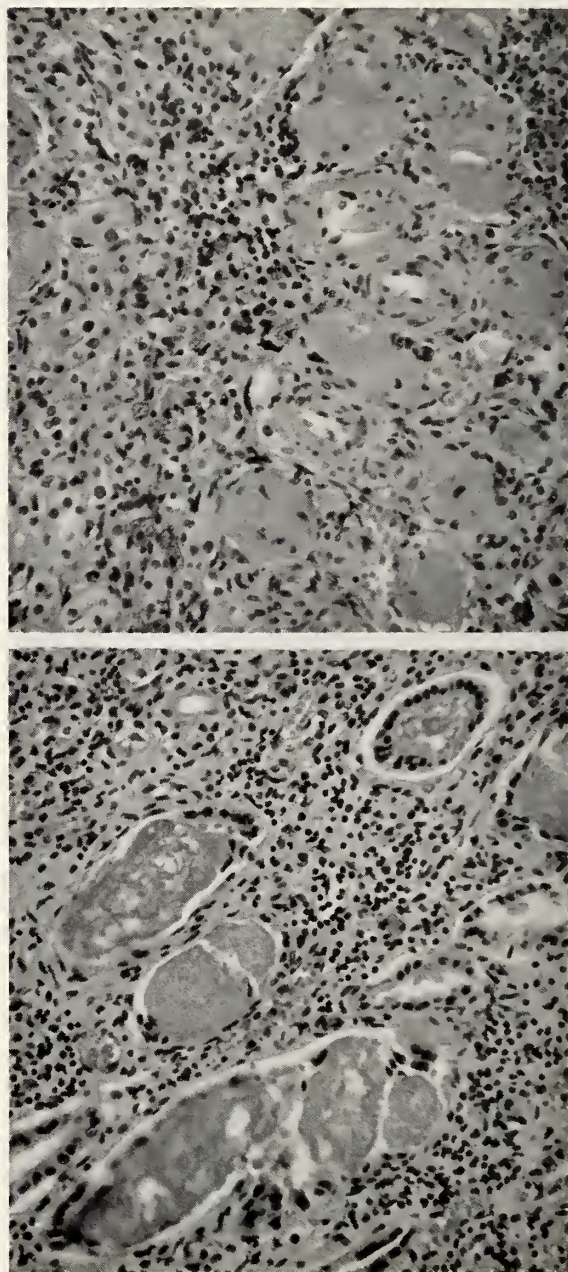


Figure 5. Kidney. $\times 200$. H and E. Top—Severe glomerulosclerosis, tubular atrophy, interstitial inflammation and arteriolar thickening. Clumps of crystals are visible in the interstitium. Bottom—Large casts distending the loops of Henle. Note the giant cell reaction.



Figure 6. Costochondral junction showing the irregular, disorderly zone of ossification and areas of deficient calcification. $\times 25$. H and E.

characteristic. Dr. Brown has already stressed that it must not be confused with cystinuria, in which only the dibasic amino acids are excreted in excessive amounts, no cystine deposition occurs, and the only significant complication is the formation of cystine stones in the kidney which may lead to secondary infection and renal failure. Patients with cystinosis excrete a wide range of amino acids, up to twenty in number.

A second problem is the relationship of cystinosis to the Fanconi syndrome. Clinically the two cannot be distinguished; cystine storage is the only differentiating feature. It has usually been considered that cystine storage in Lignac's disease is a feature distinctive enough to make it a separate entity. Bickel et al. contend that the Fanconi syndrome and cystinosis are one and the same disease, and state that the majority of reported cases of Fanconi's syndrome have shown cystine storage. The failure to demonstrate cystine in Fanconi syndrome, they believe, may be due to the scantiness of crystals or to improper handling of tissues.

Several theories of pathogenesis have been proposed. Early workers, including Lignac, assumed a disorder in cystine metabolism identical to that in cystinuria. In support of this theory Freudenberg postulated that the disorder consisted of failure of the normal oxidative degradation of sulfhydryl cysteine to sulfate, resulting in its increased oxidation to the disulfide cystine, with secondary deposition of cystine

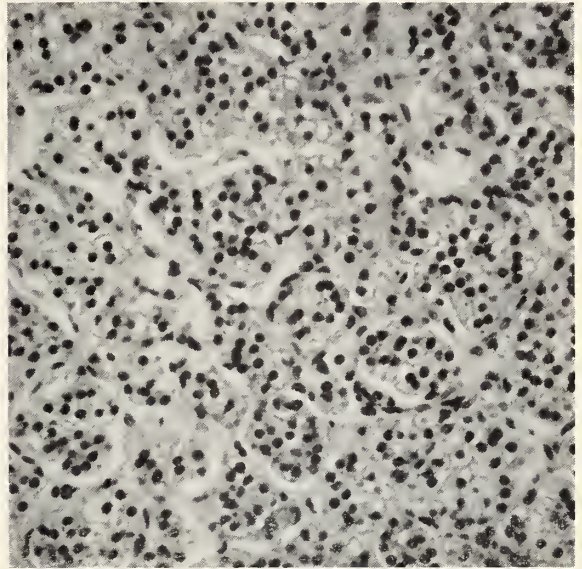


Figure 7. Early secondary hyperplasia of parathyroid gland. $\times 275$. H and E.

in the reticuloendothelial system. For reasons alluded to above this theory is not acceptable. It certainly does not account for the general aminoaciduria. The opposite hypothesis of absence of an enzyme which converts cystine to cysteine is unacceptable for similar reasons.

The controversy regarding the pathogenesis at the present time is between a primary renal mechanism and generalized disturbance of amino acid metabolism. Fanconi first proposed that the renal tubules are unable to reabsorb glucose, phosphate, water, potassium and amino acids. This theory has received wide acceptance. In argument against it, however, Bickel et al. present evidence to show that the blood level of several amino acids are actually raised instead of lowered as might be expected if the renal theory holds true, and that hyperphosphaturia is either absent or only relative and the negative phosphate and calcium balances are due to their loss in the feces instead of the urine. Nor does the renal theory explain the cystine deposition in tissues. These authors present experimental and histopathologic evidence to indicate that cystine is not taken up by the reticuloendothelial cells from over-saturated body fluids, but that the excess formation and crystallization occurs within these cells. They support the idea of a primary congenital intracellular disorder of protein anabolism involving a large number of amino acids. Either theory leaves many unanswered questions. The renal lesions, for example, are not accounted for. The early assumption that the cystine itself is irritating to the kidney and causes the lesions has been discarded because no such changes are found in cystinuria, in which the renal

excretion of cystine is greater. A final elucidation of the pathogenesis will have to await further biochemical and histochemical studies.

Pathological Anatomical Diagnosis

Cystinosis with deposits of cystine crystals in spleen, lymph nodes, bone marrow, liver, kidney, adrenal, stomach, lung, thyroid and pancreas.

Glomerulosclerosis, advanced.

Rickets, moderate.

Dwarfism, slight.

Hypertrophy of the left ventricle of the heart, moderate.

Hyperplasia of a parathyroid gland, slight.

Healed and healing granulomas in hilar and cervical lymph nodes, moderate.

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SERIES OF TEACHING FILMS PLANNED

Physicians and medical students in the United States and abroad will have an opportunity to further their education under notable authorities in the field of medicine through a series of professional teaching films, titled "Clinical Entities."

The series is being produced by the Wayne State University College of Medicine under educational grants from Eli Lilly and Company.

"Diabetes in Youth," the first in the series, had introductory showings at the 1962 conventions of the American Medical Association and the American Diabetes Association in Chicago. It features lectures and case studies by the staff of the famous Joslin Clinic, Boston.

The second of the series, "Angina Pectoris," and the third, "Coronary Occlusion," are both by Samuel A. Levine, M.D., clinical professor emeritus of medicine, Harvard Medical School, Boston.

Other films in the series are being planned.

The movies will be made available on temporary free loan to medical teaching institutions—to medical schools, medical societies, hospitals, state, county, and city health departments, and medical conventions in this country and abroad. Distribution is from the Audio-Visual Utilization Center, Wayne State University, Detroit 2, Michigan. The films also may be purchased at cost from the center.

The diabetes film will be ready for general release about August 1 and the other two at a later date.

The Wayne State director of the series is Frederick J. Margolis, M.D., and the producer is Rex Fleming, Santa Barbara, California.

Dr. Margolis said that the university medical school has been producing medical teaching films for a number of years. He expects this series to be particularly successful because of the co-operation of top authorities in medicine and because of the increased stress put on continuing medical education by the American Medical Association.

The recent report of the A.M.A.'s Joint Study Committee on Continuing Medical Education points out that "the physician must be a lifetime student if he would maintain his full professional competence." Even the best medical training can become quickly obsolete unless a determined effort is made to continue medical education. The A.M.A. report aims at the creation of a "university without walls" which would provide organized, comprehensive, sequential courses in all areas of medicine.

"First-class teaching films in which case studies are presented and discussed by the leading authorities will have a vital part in this new program," says Dr. Margolis. "The film can bring together more cases of certain diseases than one could see in weeks in a key medical institution. Furthermore, the films can be available when and where the busy physician wants them."

"Diabetes in Youth" has historical importance since it is opened and closed by the late Dr. Elliott P. Joslin, founder of the clinic, in scenes taken only a few days before his death at the age of ninety-two.

This film and the one on angina pectoris run about an hour, while the movie on coronary occlusion lasts about thirty-five minutes. All three are 16-mm. sound and color presentations.

A fourth 16-mm. sound and color film—"Cough: Diagnosis, Management, Research"—is being made available by Lilly independent of the "Clinical Entities" series. It features Hylan A. Bickerman, M.D., associate clinical professor of medicine, Columbia University College of Physicians and Surgeons, New York City. Its premiere showing was held at the A.M.A. convention June 27.

This movie also was directed by Dr. Margolis and produced by Rex Fleming. Its running time is approximately twenty-eight minutes. It will be released generally on temporary free loan about August 1 through the Medical Program Planning Division, Eli Lilly and Company, Indianapolis 6, Indiana.

It is not so much our friends' help that helps as the confidence of their help.—*Epicurus*

The President's Message

DEAR DOCTOR:

This year again sees the electorate going to the voter's booth. We in medicine have a particular interest at stake. We have been advised with the failure of King-Anderson legislation that it will return in the next session of Congress. Since we have been forewarned, it behooves us to exercise our rights as citizens to vote for those who believe and support our principles.

I would urge each member of our profession to not only exercise his right to vote but to also see that his wife and employees exercise their right.

Prior to exercising this right, one should determine, if possible, the attitude of the respective candidate on the various issues which will affect us as the governed. This knowledge will allow each of us the privilege of knowing how to vote. It will also give us material to use in our everyday contacts to promote our candidates.

It is my hope that each of us will take advantage of these privileges before and on November 6, 1962.



Norton L. Francis M.D.

President



Editorial COMMENT

(EDITOR'S NOTE: On July 13, 1962, Senator Frank Carlson of Kansas addressed the United States Senate concerning the Social Security system and how enactment of the King-Anderson bill to provide health care for the aged through expansion of Social Security benefits would affect this program generally. The JOURNAL received permission from Mr. Carlson to publish this speech and is pleased to print this as an analysis of social security as well as an expression from the Senior Senator of Kansas on his opinion regarding this subject.)

The Senate Finance Committee, after extended hearings, reported to the Senate the Public Welfare Amendments of 1962 (H.R. 10606) which is now before the Senate for consideration.

This bill, as reported by the Senate Finance Committee, if approved by the Senate and accepted by the House of Representatives, would greatly extend and improve the public assistance and child welfare service programs of the Social Security Act.

The Senate Finance Committee heard much testimony in behalf of this legislation from the Secretary of Health, Education, and Welfare, representatives of State boards of social welfare, and private groups and individuals. In my opinion, it is one of the most forward-looking steps taken in our social security program since its inception.

Many of the amendments adopted and approved in this bill are the result of experience in dealing with our social security problems.

Now sudden consideration by the U. S. Senate of a compromise program on hospital care for the aged threatens to short-circuit the usual committee procedures of the Senate and endanger enactment of H.R. 10606.

I think it is the consensus of opinion of everyone who has worked on this problem and is familiar with the legislative procedures, that the pending Anderson amendment will not be enacted into law in this

Congress. I would regret to see an amendment added to H.R. 10606 that would endanger enactment of the bill this year.

Personally, I feel that our aged need medical care and regret that we in the Senate are confronted with a bill that has not had public hearings and thorough study by the Senate Finance Committee.

As a matter of fact, the Anderson amendment as pending before the Senate, is a combination of several proposals for medical care for the aged and is not the original King-Anderson bill.

The new measure adds four features to the administration-endorsed King-Anderson bill.

One would blanket in an estimated two and a half million persons not covered by social security. No contribution is asked from those who would receive this windfall and the new benefits would be paid to the wealthy as well as the needy.

Another change would permit a highly desirable option under which benefits could be used to pay premiums on private health insurance. This would not, however, change the compulsory nature of the tax.

The bill also would embody other changes which might or might not safeguard the present trust fund and give State or private agencies a role in administration.

This proposal would be costly in many respects. It seems to me that this is not the time to advocate a substantial addition to the social security payroll tax, when our Nation is in an economic recession and organized labor, as well as business is calling for a Federal tax cut.

One of the favorite topics of conversation today is the prospect of a reduction in personal and corporate income taxes. As I stated, some leaders of business and labor favor this course. And what is even more surprising, a number of Government officials do likewise. Fearless of the political consequences, these gentlemen argue that tax cuts would pump a much-

needed supply of plasma into our ailing national economy.

The American taxpayer can hardly believe his ears, but as a man who already contributes a third of his income to the tax collectors at all levels of government, the idea is most appealing.

Tax increases are not new to him. In fact, every time he turns around it seems that some duly constituted authority is asking him to dig a little deeper and a tax cut is more than he had dared hope for.

Not that the taxpayer is completely deluded. He realizes that no tax cut has yet developed. He is aware that this may only be a mirage shimmering in the heat of an election year, but it is the most appealing mirage in town.

Personally, I happen to think the taxpayer is long overdue for a break, and I would like to see him get one. But a peculiar thing is happening; the very people who talk tax cuts in one breath propose tax increases in the next.

While the pending Anderson amendment is so written that no one could draw any benefits before January 1, 1964, the higher taxes to pay for the program would start January 1, 1963.

Under the proposal, persons 65 or older would receive hospital and home health services beginning January 1, 1964, and nursing-home benefits the following July 1.

The bill would make the social security tax apply to the first \$5,200 a year a person earns instead of the first \$4,800. The tax base would be increased next year. In 1964 an extra one-fourth of one per cent would be tacked to the regular social security tax scale to finance the health benefits. With periodic rate boosts already booked by Congress to support the main social security pension program, the total payroll tax for ordinary workers after January 1, 1968, would be four and seven-eighths per cent on the first \$5,200 earned each year.

Now, that is a maximum of \$253.50 a year, of which \$31.50 would go for the health program as now envisioned. Personally, I feel that the cost will go higher.

For self-employed, the total social security levy would climb to seven and three-tenths per cent in 1968. That is a maximum of \$379.60 a year, including \$48.40 for medicare.

In addition, money would be taken out of the General Treasury to extend health care to people past 65 who cannot qualify for social security benefits under present rules. It is estimated that the net cost of this, as proposed in the amendment, would be \$50 million for the first year, 1964.

Extending benefits to these two and a half million persons is one of the main features of the compromise bill.

As I read the bill, persons reaching 65 before 1967 automatically would be deemed eligible for social security health benefits, even though they could not get monthly checks. A person becoming 65 in 1967 could draw health benefits if he worked on jobs covered by social security for at least six quarters, about 18 months. This requirement would increase by nine months each year so that by 1972 the same yardstick would apply to everybody.

The amendment states that only nursing homes affiliated with hospitals could take part in the program. This, in my opinion, is a serious flaw in the amendment, in that large rural sections of this Nation would receive no benefits from this amendment, because few nursing homes in rural areas have hospital connections. In other words, this is a "city bill."

It is my purpose to discuss more fully and thoroughly the proposed increases in social security taxes.

The Members of this body well know social security taxes are already scheduled to reach nine and one-fourth per cent by 1968, regardless of whether or not the pending amendment becomes law, but these presently scheduled increases apply to a taxable base of \$4,800—not \$5,200.

One and a half per cent of the scheduled increases have yet to come into effect, but will do so at the intervals prescribed under the present law. Under the present proposal, that one and a half per cent would also be levied on a \$5,200 taxable base.

So this is really a double tax, for it not only increases the percentage taken from the payroll, but it increases the amount of income subject to the tax.

This is not an unimportant point.

Suppose we take a worker earning \$6,000 a year today. He pays \$150 a year in social security taxes, and his employer pays an equal amount. By 1968, the scheduled increases will bring the amount of his tax to \$222. Once more, his employer will match that amount.

Add the one-quarter of one per cent for employer and employee called for under the pending amendment, and the addition seems minor; but increase the wage base from \$4,800 to \$5,200, and apply the full tax required to pay for both old-age benefits and health care, and we wind up with both employer and employee paying \$253.50 by 1968.

In terms of the self-employed, today they pay \$225.60 on \$4,800, and would pay \$331.20 by 1968 under the present law. Add the increase the amendment proposes, and raise the tax base to \$5,200 and the self-employed person will pay \$379.60.

Thus, the effect of passing the pending amendment would be to increase by 69 per cent the amount paid by employers and employees in the next six years—and by 68 per cent the amount paid by the self-employed.

I submit that a tax increase of this magnitude should not be considered in offhand fashion. It should have thorough and full committee consideration before being presented to the Senate.

We have had no hearings on this far-reaching measure—we appear to have disregarded the right of the House to initiate tax legislation—and we seem to be totally disinterested in the fact that similar legislation is now being considered by the Ways and Means Committee after extensive hearings.

This is neither proper procedure nor wise procedure. It little serves the deliberative function of this body.

We are urged to make haste when no person aged 65 or more would receive a single benefit under the Anderson amendment until 1964, when it would take effect.

We are urged to accept—without question—the contention of the amendment's supporters that the need of this age group is so pressing that everyone must have a program because some may need it.

We are asked to approve a heavy tax increase on the working people of the Nation in order to provide health benefits for all the aged, regardless of the fact that more than half are insured—many are covered under existing welfare programs—more than four million are still employed and Kerr-Mills exists to help those who need it.

We are required to speed our decision on a measure that would radically alter the very basis of social security itself, the concept that beneficiaries should be paid in cash, not in services—which has always been basic in the social security system—that they may use their benefits as they see fit, not that an all-wise Federal Government will give the taxpayer no option but to take or leave the health services he is compelled to pay for.

I shall do no more than note, in passing, the highly arguable wisdom of a measure that would predictably entangle the hospitals and nursing homes in red tape, overcrowd them, and lower the world's highest quality of health care.

I shall, however, mention that adoption of the pending amendment would be inflationary, and that no tax is justified which is unnecessarily levied to pay for an unnecessary program. Instead, I should like to ask how long this tax increase would suffice.

There can be only one answer to this. It is easier to start an avalanche than it is to stop one. Programs of this sort can be quickly and easily made law, but once such action is taken, the process is difficult—if not impossible—to reverse. Let me cite the history of the Social Security Act itself since its passage.

The act became law in 1935, and the tax originally called for was one per cent of wages on a base of \$3,000 a year.

In 1939, the act was amended to provide benefits for dependents and survivors under a modified benefit formula, and in January 1940, the first monthly OASI benefits were paid. The maximum primary benefit was \$40 a month.

Under the law, the tax was scheduled to increase to two per cent in 1944, two and a half per cent in 1946, and three per cent in 1949. But in the war year of 1942, the OASI contribution rates were frozen at one per cent through 1949.

The rate was increased to one and a half per cent for employees and employers as of January 1, 1950. But on August 28 of that year, the act was amended to extend coverage to some additional ten million people, to liberalize conditions for eligibility, to improve the retirement test, to provide wage credits of \$160 a month for military service from September 1940 through July 1947, to increase benefits substantially, to raise the wage base to \$3,600 to provide a new contribution schedule, and to eliminate the 1944 provision authorizing appropriations to the trust fund from the General Treasury.

I mention this to stress the importance of the changes that take place even with a program which we expected to be rather stable when we first approved it.

The following year the OASI tax rate was one and a half per cent for employees and employers and two and a quarter per cent for the self-employed on a wage base of \$3,600. This worked out to \$54 yearly for employees and employers and \$81 for the self-employed. The maximum primary benefit was now up to \$80 a month.

On July 18, 1952, the Social Security Act was amended to increase benefits, extend the period of wage credits for military service through December 31, 1953, and liberalize the retirement test. The primary benefit maximum was increased to \$85 a month.

As of January 1, 1954, the tax rate rose to a flat two per cent for employees and employers alike, and three per cent for the self-employed. Employees and employers each paid a maximum of \$72 a year, and the self-employed paid \$108.

The act was amended in 1954 to cover farmers—certain professionals—farm and domestic employees—State and local government workers—ministers and the members of religious orders. The taxable wage base was raised to \$4,200. In addition, the amendments raised the ultimate contribution rates, increased benefits, liberalized the retirement test still further, permitted a dropout of four or five of the lowest earnings in computing benefits, and authorized the disability freeze program. The maximum primary benefit was increased to \$108.50 a month.

At this point, each social security beneficiary was receiving an average of \$30 in benefits for every 50 cents he had paid in taxes, which meant that \$29.50

was being contributed by younger workers to every person drawing a \$30 benefit—surely a substantial subsidy from the younger generation.

On October 1, 1956, the act was, however, amended again. This time benefits were provided for the permanently and totally disabled between the ages of 50 and 64. The retirement age for women was lowered to 62, with reduced benefits—self-employed professional people—other than physicians—were covered—and a disability insurance trust fund was established from taxes collected on one fourth of one per cent of the taxable wage base of \$4,200 for employees and employers, and three-eighths of one per cent for the self-employed.

Miscellaneous amendments were made to the act in 1957, and the first monthly benefits under the disability program were paid in that year.

Then, on October 28, 1958, social security benefits were again increased, dependents of disabled workers became eligible for benefits, the taxable wage base was raised to \$4,800 and the work clause was increased to \$100 a month. The "floor of protection" had been raised by now to \$127 a month.

In 1959, the OASDI tax rate was two and a half per cent for employees and employers, and three and three-quarters per cent for the self-employed. The employees and employers were now paying \$120 each year, with self-employed paying \$170.

But the tax rate was increased to three per cent as of January 1, 1960, for employees and employers—and to four and a half per cent for the self-employed. Employees and employers each paid \$144, the self-employed paid \$216.

On September 13, 1960, the age limitation for disability benefits was removed, the work clause was liberalized, and coverage requirements were reduced from two of four quarters elapsing since 1950, to one of three quarters elapsing since 1950.

On June 30, 1961, men were made eligible for reduced benefits at age 62; coverage requirements were reduced from one of three quarters elapsing since 1950, to one of four quarters elapsing from that time; widows', widowers', and parents' benefits were increased, and the tax rate was again raised.

As of January 1, 1962, the tax rate for employees and employers was three and one-eighth per cent with the tax rate for the self-employed set at four and seven-tenths per cent. Thus, employees and employers pay \$150 each per year, and the self-employed pay \$225.60.

Let us now climb aboard the medicare escalator and see where it takes us.

Under existing law, the tax rate will be increased as of January 1, 1963, to three and five-eighths per cent for employees and employers, and five and four-tenths per cent for the self-employed. On top of this scheduled increase would come the proposed raise

in the taxable wage base from \$4,800 to \$5,200. Translated into taxes, employees and employers would pay \$188.50 instead of the scheduled \$174, and the self-employed would pay \$280.80 instead of the scheduled 259.20.

The following year, under the Anderson amendment, the tax rate for employees and employers would go to three and seven-eighths per cent and to five and eight-tenths per cent for the self-employed. Under these rates, the employees and employers would be paying \$201.50 and the self-employed would be paying \$301.60.

In 1966, the tax rate for employees and employers would go to four and three-eighths per cent, and to six and six-tenths per cent for the self-employed. And by 1968, employees and employers would be paying four and seven-eighths per cent each, with the self-employed paying seven and three-tenths per cent.

Thus, in 1968 and thereafter, the employee and employer would be paying \$253.50 each, and the self-employed would be paying \$379.60—if—and there is a big if here—the cost of the proposed benefits could be met by the proposed increase in taxes.

It might be wise to qualify that even further and add a second "if." We must also include the proviso that social security benefits are not further liberalized in the meantime.

Now a pattern emerges from this examination of our past experience with the Social Security Act. I cannot see how any Senator can overlook it. We have deferred scheduled tax increases, we have extended coverage to new groups, we have increased benefits for both retired and non-retired groups, and we have done so all too often without imposing new tax increases to cover their cost.

We have done this by passing on a mounting debt to the younger worker, until we are now at the point where estimates by competent actuaries of the accrued liabilities resulting from the social security program range from \$289 billion to more than \$600 billion.

We are raising the money to pay current benefits through current taxes, but I ask Senators if there is not a limit to the size of the tax burden that future generations will be willing to bear? Or, for that matter, will be able to bear?

I am far from persuaded that the tax increases called for by the Anderson amendment will be sufficient to pay for the benefits promised.

Moreover, I am far from convinced that a health care program of the type proposed would remain limited to its present scope. I have variously heard it estimated that the benefits provided under this amendment would take care of an estimated 40 per cent or less of an older person's health care expenses.

I suggest that this fact alone would guarantee an expansion of the program. More liberal benefits,

broader coverage, easier eligibility requirements—where do they lead? Just as surely as night follows day, the pressures would mount to expand this plan until it ultimately became a full-fledged program of compulsory national health insurance covering every man, woman and child in the Nation at a staggering cost.

Is this a farfetched conclusion? I think not. We have been warned, time and again, by the proponents of social security medicine. They have been remarkably candid in calling measures of this sort "a foot in the door," a beginning, a mechanism for bringing about socialized medical care for Americans.

The Department of Health, Education, and Welfare, which has lobbied for this sort of bill not only before Congress, but before the public, now employs some 75,000 people—an increase of more than 10,000 in the past year and four months, by the way.

This constitutes a tidy little bureaucracy.

Let us suppose that the proponents of social security medicine are successful in their effort to bring about a system of compulsory national health insurance for the United States. Can you imagine what the bureaucracy will become?

One out of every hundred citizens of Great Britain is now employed by the Ministry of Health. If that same ratio applied in this country, HEW would be required to hire one and three-quarter million more employees.

I have served long enough on the Finance Committee to know how much we do not know about the sort of legislation proposed in the amendment.

The amendment departs radically from the Forand bill—the McNamara bill—the Anderson-Kennedy amendment—the King-Anderson bill now being considered by the Ways and Means Committee, and any other proposed legislation invoking the social security program as a financing mechanism.

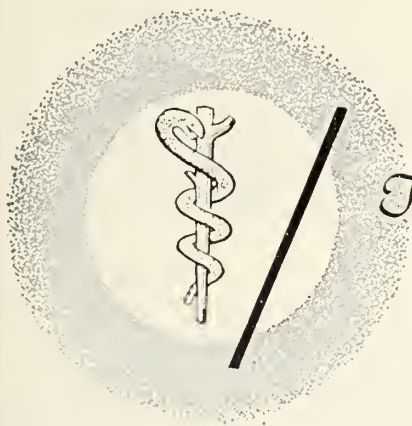
It is significant, however, that the only committees that ever have held hearings on this species of measure have voted overwhelmingly against releasing those measures to the floor. Specifically, I am referring to the Senate Finance Committee, which held hearings on the Forand bill, and the Ways and Means Committee, which held hearings on the Forand bill and the King-Anderson bill as well.

I feel the actions of both committees were sound. And I suspect that the sponsors of the amendment are bypassing the Finance Committee, and overriding the prerogatives of the House, because they recognize that the closer the scrutiny this measure receives, the less likely it is to win Senate or House approval.

I for one will vote against the amendment as unnecessary, hastily contrived, incalculably expensive, and certain to grow in the years ahead until it saddles this Nation with a fullfledged system of compulsory national health insurance for every American.

BACK THE ATTACK On Traffic Accidents WITH THESE SPEED RULES

- Drive at a speed that will enable you to stop in the assured clear distance ahead.
- Slow down before you get to curves and intersections.
- At night, drive at the speed which will let you stop within your headlight range.
- Drive with traffic. You are probably going too fast if you are passing many cars—too slow if many are passing you. Where children are playing, be able to stop in a car length or less.
- When you're tired or inattentive, stop.



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

WHERE IT GETS ITS GALLOP

This used-to-be land of the free is afflicted with what might be called a case of galloping bureaucracy. Or perhaps, runaway might be the more truly descriptive adjective.

I learned the lesson of citizen David fighting an army of Goliaths and without even good slingshots for weapons back in the fifties when a gallant band of freemen tried to fight off the Corps of Engineers and their Big Dam Foolishness program. Because sense and science both were on our side we managed to rally nationwide support for the watershed program as a superior method of soil and water control, managed to force Congress to refrain from making appropriations for Tuttle Creek Dam and the rest and it looked like we were going to triumph.

We did triumph to the extent that we won all the battles but lost the war. The private citizens involved, and there were a great many, spent hundreds of thousands of dollars in the campaign, countless hours of time and literally fought themselves to exhaustion. The while, the well fed, high salaried smug little men of what has been aptly termed the world's most powerful lobby, the Corps of Engineers, civilian status, bided their time and spent not a penny nor an hour of their own.

This comes to mind in regard to the recent defeat of the administration's effort to convert our medical program, the best in the world, from free enterprise to socialism. The AMA and all the many Americans who work with the medics should lose no time in relaxing or celebrating a past victory. Like the nine-headed Hydra which grew back two heads when one lopped off, bureaucracy never quits grabbing for more power. One defeat but stimulates it to greater effort. The administration will be back next year and

the next pushing, probing, bribing, promising, using tax money to brainwash the citizenry, until it gets its way.

How do you tame this savage despoiler of freedom? Hercules found a way to whip the Hydra, by cauterizing each time he lopped off a head so the new ones couldn't grow. With bureaucracy cauterizing takes the form of searing away the tax monies which feed and energize what now has become a monster menacing our way of life.

There is no other way. Bitter experience proves it. The AMA has proven itself a formidable foe, but bureaucracy is even more formidable. Bureaucracy and its left-wing allies have all to gain (so they think) and nothing to lose in letting the citizen groups flail away like frenzied Quixotes until they retire from the field in sheer exhaustion. Meanwhile the army of bureaucrats live off the fat of the taxpayers and deftly smear their opponents until they take on an image of cruel, arrogant tyrants who would deny old people medical care and prescribe a formaldehyde formula for little babies.

The AMA, and free citizens in all professions and businesses need to reconnoiter, assess both the strength and weakness of the enemy, then drop back and regroup for an all-out attack which will at least hold promise of a final victory.

Fighting a holding action with bureaucracy is to concede. Bureaucracy gets its ability to gallop off in all directions into freedom's domain from just one source—the overburdened taxpayer. Cut bureaucracy's budgets and you cut their power. There is no other way.

The proposed 23rd Amendment to the Constitution holds the answer.—*Ellsworth Messenger*, August 22, 1962.

From the Stacks

State Medical Library

MRS. BETTY CULLEY, *Librarian*
Stormont Medical Library, State House
Room 516, Topeka, Kansas
Telephone: Central 5-0011, ex. 297

RECENT ACQUISITIONS

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Book REVIEWS

NEW AND NONOFFICIAL DRUGS—1962. Compiled by the Council on Drugs of the American Medical Association. Publisher: J. B. Lippincott Company, Philadelphia and Montreal. 900 pages. Price \$4.00.

This is perhaps the best, most authoritative, most practical, most economical and most overlooked book on modern drug therapy that is on the market today. We have for many years been experiencing a "drug explosion," and physicians everywhere are asking where they can get authoritative information concerning new drugs. *New and Nonofficial Drugs* is one of the very best sources of this information, and it is a bit difficult to understand why it does not enjoy wider use. True, it does not contain information about the very latest products, but that is because truly authoritative information is simply not available from any source.

If physicians all waited to use a new drug until the Council on Drugs had an opportunity to evaluate it and publish their evaluation there would be fewer problems with therapeutic failures, unexpected side effects and bizarre toxic reactions; and we would not be subjected to the humiliation of accepting an inadequately tested drug in our practices only to have it proved worthless or even be withdrawn from the market as a dangerous agent.

New and Nonofficial Drugs is divided into 24 chapters. Each chapter is introduced by a brief (usually one- or two-page) introduction which characterizes the group of drugs to be discussed. The drugs are listed under their official or generic names and reference is made to all of their common proprietary names. When available, the structural formula of the drug is given. Then follows a section on action and uses which outlines briefly the practical pharmacology of the drug and its therapeutic usefulness. Following this is a section on dosage which goes into enough detail to be really helpful to the physician. A final paragraph lists the pharmaceutical preparations and dosage forms that are available.

In spite of the amazing amount of information contained in the monograph on each drug, each mon-

ograph is usually only one or two pages in length.

The book contains descriptions of individual drugs that are generally available in the United States. The nonofficial drugs included are usually those that have not been used sufficiently widely or for a long enough period of time to have been included in the U. S. P. or the N. F. Contrary to the usual idea, this book does contain information about a large number of official drugs, giving full coverage to items that are "new" in the sense that they have not been official for more than 20 years. Drugs older than that will presumably be well known to physicians or authoritative information about them will be available in even the older standard textbooks.

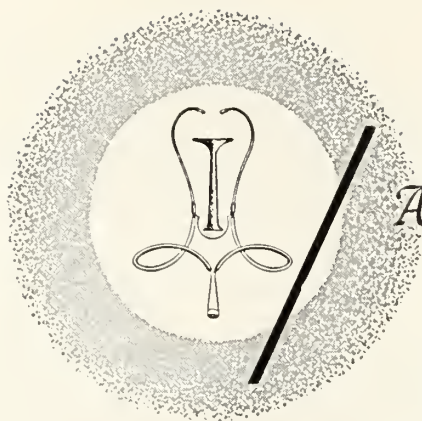
One can enter a subscription for this valuable but inexpensive book and be assured of receiving it annually. It would be a boon to rational therapeutics if every physician would do so and use it as his guide to new drugs.—J.D.R.

DIFFERENTIATION BETWEEN NORMAL AND ABNORMAL IN ELECTROCARDIOGRAPH, Ernest Simonson. C. V. Mosby Company, St. Louis, 1961. 328 pages, \$13.50.

A remarkable number of textbooks have been published and a voluminous literature established without the precise definition of the limits of normal in the science of electrocardiography. This remarkable book attempts to define these limits.

Not a textbook to teach electrocardiographic theory, it is a most useful guide for the physician who interprets tracings. The data was accumulated using the commonly accepted 12 lead electrocardiograms and well established principles of statistical analysis. The resulting charts demonstrating the range of normal of various measurements will be extremely helpful in routine interpretation. The same principles are used in establishing normal range in such subjects as ventricular gradient and the various stress tolerance tests. The sources of variability in the electrocardio-

(Continued on page 453)



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

"Psychiatric Reactions to Accidents" will be the subject of a seminar to be held in Wichita. Dr. Herbert C. Modlin of the Menninger Clinic and Dr. Jay Shurley of the University of Oklahoma Medical School will be the speakers and will conduct the panels. Emphasis placed on such practical subjects as prophylaxis, detection, and treatment will make the seminar of particular importance to those physicians who treat compensation and liability cases. Inclusion in the seminar of related fields as attorneys and adjusters will lay the basis for a comprehensive approach to this medico-legal problem.

The seminar will be held Sunday, November 25, 9:00 a.m. to 4:00 p.m. in the Auditorium of the Sedgwick County Medical Society Building, 1102 South Hillside. The \$15.00 registration fee includes a noon lunch and coffee break refreshments. Registration may be made with the sponsor of the seminar: The Midwest Medical Research Foundation, 3244 Victor Place, Wichita, Kansas.

The Fourth National Conference on the Medical Aspects of Sports sponsored by the American Medical Association, under the auspices of the A.M.A. Committee on the Medical Aspects of Sports, will be held in Los Angeles, at the Statler Hilton Hotel on November 25, 1962. The Conference will be held in conjunction with the Clinical Meeting of the American Medical Association, November 25-28, 1962.

Included will be papers, panels, and discussions relating to training and conditioning, prevention of injuries, recognition, referral and treatment of injuries, the physiology of sports participation and other subjects.

Those interested in receiving announcements concerning the Conference should address the Secretary, Committee on the Medical Aspects of Sports, Amer-

ican Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

The International College of Surgeons will hold its Midwest Regional Meeting at the Hotel Savery, Des Moines, Iowa, October 31-November 1, 1962. For further information, write to Bernard Barnes, M.D., 803 Equitable Building, Des Moines, Iowa.

The Ninth Annual Meeting of the Academy of Psychosomatic Medicine will be held in Minneapolis, November 1-3, 1962, at the Radisson Hotel. Physicians desiring to attend may obtain pre-registration and hotel reservation forms from Bertram B. Moss, M.D., Executive Secretary, 55 East Washington Street, Chicago 2, Illinois.

The 27th Annual Convention of the American College of Gastroenterology will be held at the Morrison Hotel in Chicago on October 29-30, 1962.

On November 1-3 immediately following the convention Dr. Owen H. Wangensteen, Minneapolis, Minnesota, and Dr. I. Snapper, Brooklyn, New York, will be the moderators of the annual course in Postgraduate Gastroenterology. The sessions will be held at the Morrison Hotel and at the Cook County Hospital. Attendance at the course will be limited to those who have registered in advance.

Copies of the program and further information concerning the Postgraduate Course may be obtained from the American College of Gastroenterology, 33 West 60th Street, New York 23, New York.

The eighth annual meeting of the American Rhinologic Society will be held in the Statler Hilton

Hotel, Los Angeles, November 1-2, 1962. A scientific program covering new developments in nasal surgery will be presented on the second day, it was announced by Dr. Charles J. Petrillo of New Haven, president of the society.

The meeting will be preceded by a three day course in "Expanded Surgery of the Nasal Septum" to be presented at the Loma Linda University in cooperation with the American Rhinologic Society.

For further information, write to the American Rhinologic Society, 530 Hawthorne Place, Chicago 13, Illinois.

Kansas doctors are invited to hear Dr. Jesse Rising speak on "Mental Health and General Medicine" during the Annual Conference of the Kansas Association for Mental Health October 20 at the Allis Hotel in Wichita.

Dr. Rising is chairman of postgraduate medicine at the Kansas University Medical Center, Kansas City, Kansas.

His presentation will follow a noon luncheon address by John Anderson, Jr., Governor of Kansas, on "Mental Health in Kansas: The Future."

Theme of the two-day Conference is "Mental Health Is Everybody's Business." As explained by Raymond Briman of Topeka, president of the Kansas Association, the purpose of the Conference is to study where Kansas has been, is now, and is going in mental health.

Dr. Robert Haines, Director of the Division of Institutional Management, will speak Friday afternoon on "Mental Health in Kansas—1962." His address will follow a presentation by Blake Williamson of Kansas City on "Mental Health in Kansas—1945-50."

A one-day medical symposium, sponsored by the Hertzler Clinic and the Hertzler Research Foundation will be held in Halstead, Kansas, the afternoon and evening of October 26, 1962, in the School of Nursing Auditorium, it was announced today by officials of the Hertzler Research Foundation.

The subject of this symposium will be "Psychiatry for the General Practitioner." The panel of speakers for the afternoon program includes: Dr. Paul Feldman, Director of Research and Professional Education of the Topeka State Hospital; Dr. Edwin Dunlap, Director of Research at the Fuller Memorial Sanitarium in Attleboro, Mass.; Dr. Paul Laybourne, Jr., Associate Professor of Pediatrics and Psychiatry and Director of the Division of Child Psychiatry at the University of Kansas School of Medicine; and Dr. J. E. C. Morton, Chief of the Department of Psychiatry at the Hertzler Clinic.

After a social hour and a buffet supper between 5 p.m. and 7 p.m., the evening program will be devoted to a panel discussion of the problems of psychiatry in the general practice of medicine.

This program has been classified by the American Academy of General Practitioners as a Category II meeting and all members of this association will receive three hours of credit for attendance.

The American College of Physicians offers the following postgraduate courses during October and November:

Oct. 29-Nov. 2 The Rheumatic Diseases: Pathology, diagnosis and treatment, Harvard Medical School, Robert B. Brigham Hospital and Peter Bent Brigham Hospital, Boston, Mass.; Theodore B. Bayles, M.D., F.A.C.P., Director.

Nov. 13-17 Endocrinology and Metabolism, The Johns Hopkins Hospital, Baltimore, Md.; Samuel P. Asper, Jr., M.D., F.A.C.P., Director.

Tuition fees: Members, \$60; Non-members, \$80. Registration forms and requests for information should be directed to Edward C. Rosenow, Jr., M.D., Executive Director, The American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania.

Book Reviews

(Continued from page 451)

gram, biological and technical, are particularly well presented.

A minor criticism should be directed at the mediocre reproduction of some of the electrocardiographic tracings.

In the reviewer's opinion this book is an important addition to the cardiology library. It should be standard in the library for those who interpret electrocardiograms.—E.W.C.

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Personalities—IN KANSAS MEDICINE

Governor John Anderson awarded a number of certificates of appreciation to persons who have served the Selective Service system without compensation. Among those receiving awards for 20 years of service were **R. G. Klein**, Dodge City; **Kellogg F. Bascom**, Manhattan, and **Leo J. Schaefer**, Salina.

The Business and Professional Women's Club of Minneapolis recently honored **Winifred Wooster** for 50 years of medical practice in Ottawa County. The Junior Chamber of Commerce of that city paid further tribute to Dr. Wooster for her many years of service.

Richard R. Beach, Topeka, was speaker at the commencement exercises of the Stormont-Vail School of Nursing graduating class.

A three-county health education workshop was held at Kinsley in August. Featured speakers for the workshop included **Thomas Butcher**, Emporia, and **Clement Vickery**, Topeka.

Wilmer A. Harms, Hesston, was the opening speaker at the annual convention of the Mennonite Medical Association which was held in September at Camp Laurelville near Pittsburgh, Pennsylvania. Dr. Harms spoke on "The Christian Physician in His Professional Organizations."

A member of the staff of the Gelvin-Haughey clinic at Concordia, **Yong W. Kim**, was notified in August of his election as a Fellow of the American College of Chest Physicians.

Edward D. Greenwood, Topeka, spoke at the August meeting of the Lawrence-Douglas County Health

Board. Dr. Greenwood stressed the need of good communication in the public health field.

The Philomathean Study Club of Burlington had as their guest speaker for the September meeting **A. B. McConnell** whose subject was "Medical Care for the Aged."

Dr. Julius Scates, who has just completed an orthopedic residency at the St. Francis hospital, Wichita, will become associated with **Marshall A. Brewer** and **W. W. Dodson** in the Ulysses Medical Center. He will begin his practice in Ulysses on October 1, according to a recent announcement made by Dr. Brewer.

A diagnostic clinic for crippled children of Montgomery County was held at Independence during September. Examinations were conducted by **W. David Francisco**, Kansas City, and **H. O. Marsh**, Wichita.

Dr. Victor M. Eddy, son of **Dr. and Mrs. Murray C. Eddy** has returned to Hays and is now associated with the Eddy Clinic as a general surgeon.

J. L. Lattimore, Topeka, attended the National Coroners meeting in Asheville, North Carolina, in August. Dr. Lattimore is coroner for Shawnee County.

The provisions of both the Kerr-Mills bill and the King-Anderson bill were discussed by **J. R. Bradley**, Greensburg, at the August meeting of the Lions Club.

R. D. Hughes, Marysville, was re-elected chairman of the Marshall County Chapter of the American Red Cross during the annual meeting in August.

KANSAS STATE BOARD OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in June 1962 and 1961

And Cumulative Totals for the First Six Months of 1962 and 1961

Disease	June			January to June Inclusive		
	1962	1961	5-Year Median 1957-1961	1962	1961	5-Year Median 1957-1961
Amebiasis	3	4	2	30	24	24
Aseptic meningitis	—	—	*	4	—	*
Brucellosis	—	4	8	13	18	33
Cancer	496	251	412	1,959	2,002	2,516
Diphtheria	—	—	—	—	—	—
Encephalitis, infectious	4	—	1	10	11	13
Gonorrhea	200	330	184	1,107	1,417	1,043
Hepatitis, infectious	24	75	10	309	487	166
Meningococcal, meningitis	2	—	1	10	11	11
Pertussis	—	—	4	16	17	34
Poliomyelitis	—	—	2	—	—	3
Rheumatic fever	—	—	—	7	4	3
Salmonellosis	—	6	*	20	22	*
Scarlet fever	4	2	4	400	841	451
Shigellosis	3	3	1	11	62	14
Streptococcal infections	46	59	13	869	861	204
Syphilis	112	136	131	606	684	684
Tinea capitis	5	4	6	74	68	127
Tuberculosis	27	26	29	141	163	180
Tularemia	—	1	2	6	7	17
Typhoid fever	—	—	—	—	2	3

* Statistics on 5-Year Median not available.

Influenza Immunization 1962-1963

The Surgeon General's Advisory Committee on Influenza has recommended that persons over 45, particularly those over 65 years of age; persons of all ages who have chronic cardio-vascular, pulmonary, renal, or metabolic diseases; and pregnant women be immunized against influenza as a routine practice, since patients in these categories have experienced the highest mortality rates during influenza epidemics.

Since influenza vaccine is produced in eggs, the Surgeon General's Advisory Committee on Influenza has advised against vaccination of persons who are unable to eat eggs or chicken because of food allergy or who have had a definite allergic reaction, whether

urticarial, asthmatic, or anaphylactic, on previous inoculation of an egg vaccine.

State-Wide Oral Polio Program

A co-ordinated STATE-WIDE ORAL POLIO PROGRAM is proposed in which it is hoped that 1,500,000 Kansans will be given the Sabin vaccine at the same time during January, February and March.

If a local program in your county is already being planned for months other than these, may we urge that the final dates for scheduling such a program be held in abeyance until details regarding a coordinated STATE-WIDE PROGRAM have been completed.



CECIL E. HASSIG, M.D.

Cecil E. Hassig, 65, a physician for 36 years in Kansas City, Kansas, died September 2 at Bethany hospital in Kansas City.

Dr. Hassig was born at Amoret, Missouri, and lived most of his life in Kansas City. He was graduated from Stritch School of Medicine of Loyola University, Chicago, in 1924.

An otolaryngologist, Dr. Hassig was on the medical staff at Bethany, Providence and St. Margaret hospitals, and the Shawnee Mission Convalescent Health Center. He was a member of the Trinity Lutheran church, various Masonic orders and medical associations.

Surviving are his wife and two sons.

BRUCE A. HIGGINS, M.D.

Bruce A. Higgins, 84, a medical doctor in Sylvan Grove until his retirement in 1954, died August 8 at the McAtee Nursing Home at Iola.

Dr. Higgins was born at Conneaut, Ohio, on October 5, 1877. He attended East Corinth Academy and was graduated from Bowdoin Medical college at Portland, Maine, in 1901. In 1917 he came to Lincoln to establish his practice. He and his family later moved to Lucas and in 1926 to Sylvan Grove where he practiced for 28 years.

He was a member of the Sylvan Grove Presbyterian church, the Masonic Lodge and Eastern Star, and medical organizations. He had served as county health officer and coroner of Lincoln county.

Dr. Higgins is survived by a son and a daughter.

Quality Control in the Drug Industry

H. J. LOYND, *Detroit, Michigan**

For the first time in medicine's long history, the physician has at his disposal an ample number of remedies that are truly effective in preventing and treating many hitherto unyielding diseases. They are powerful, direct-acting agents that, more than ever before, need to be used precisely and manufactured precisely. If, as Sir Julian Huxley has remarked, modern medicine has given us "death control," then, surely, quality control of its medicaments has helped to make this happy achievement possible.

As defined in a statement of general principles, recently adopted by the Pharmaceutical Manufacturers Association, "Control of quality in the formulation, manufacture and distribution of pharmaceutical, biological, and other medicinal products is the organized effort employed by a company to provide and maintain in the final product the desired features, properties, and characteristics of identity, purity, uniformity, potency, and stability within established levels so that all merchandise shall meet professional requirements, legal standards, and also such additional standards as the management of a firm may adopt."

Control Procedures Are Basic

The procedures necessary to bring about these results include all appropriate tests and assays of the ingredients to be used and on the final product, regardless of whether it is a drug as "old" as aspirin or as "new" as oral poliomyelitis vaccine. Control procedures often begin with the examination of samples of the ingredients before purchase by lot is made (usually where botanicals are to be used), continue with the testing of the actual ingredients and final product, and end with the application of the finishing or control number to the package label. These procedures are the means for obtaining facts on which to base sound judgment regarding the character, quality, and uniformity of a medicinal preparation and of the statements that may be made concerning it in labeling or advertising. They are the scales that weigh the evidence of the strength, quality and purity of each lot of the product.

Quality control must be concerned with every fac-

tor that can affect the character and quality of the finished product, whether single ingredient or compound, including purchasing, manufacturing, packaging, storage, and labeling. Control procedures are also applied to such items as glass containers, closures for bottles and liners in caps, filters, pyrogenic substances in parenterals, even to the glue used for labels. Labels themselves, in a good quality control system, are kept under strict control so that no mix-ups or thefts will occur, with possibly serious consequences. They are counted, secured at night, and brought out and placed on the finishing line, where they are counted again.

It is obvious that an adequate control laboratory must have a wide variety of chemical and physical apparatus for conducting the necessary tests for determining the identity, uniformity, strength, and purity of each lot of each product. It is equally obvious that it must be staffed with trained scientists capable of employing the chemical, physical, bacteriological, pharmacological and microbiological procedures required by the particular product or process. But the group involved in quality control work includes more than just those actually making the goods. There are inspectors, as well as scientists, who make their examinations at all stages of the process, and there are others who check on the material in the warehouse to see that all stock is in satisfactory condition.

Records Serve as Support

Supporting the entire control process, are the records that are kept of all manufacturing and packaging operations, weighings, measurements, inspections, tests and assays, for each production lot, with the signature of the person responsible for each of the steps in those procedures. These records are often retained permanently by the laboratory. In addition to their value in helping to assure the production of a preparation of uniform quality, they provide, through the use of batch, lot, or control numbers, a system of identification whereby recalls can be made if necessary. They also supply the information required by law for the new drug application, under the Federal Food, Drug and Cosmetic Act, namely, "a full list of the articles used as components of such drug; a full statement of the composition of such drug; a full description of the methods used in, and the facilities and controls used for the manufacture, processing,

* President, Parke, Davis & Company, and a member of the board of directors of the Pharmaceutical Manufacturers Association.

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and packing of such drug; specimens of the labeling proposed to be used for such drug."

Intricate, Difficult—Always Precise

This general summary of quality control in the drug industry is only a brief outline of an intricate and difficult, but always precise, process. Details will, of course, vary widely from plant to plant, depending on the size of the operation, the number of employees, extent of production, and the variety of substances made. But no matter what pattern the control procedures may take in any given situation, they must be able to guarantee the quality of the final product. Like all other aspects of drug manufacturing, quality control procedures are under continuous critical review looking toward all possible improvements in technics and equipment. New and better tests and methods of assay are constantly being sought, while old ones are constantly undergoing refinement.

The quality control laboratory, when properly conducted, is the area in which the drug manufacturer's integrity is measured by his product. It is his means of assuring the physician of the character, quality and uniformity of the medicine he prescribes, down to the single dose: A 5-grain tablet must be not only of uniform stability, size, weight, quality, and purity, it must contain 5 grains of medicine, no more and no less, within close limits.

There is more to quality control, however, than the routine application of scientific procedures. Medicinals of high quality are not automatically produced. There must be a "high quality" consciousness prevalent throughout the plant; workers must be kept quality conscious. The layout of the plant, too, is important in the production of a product of high quality. It should, for example, be so arranged as to avoid the danger of cross-contamination of materials, and permit the appropriate isolation of batches in process.

Reflects Integrity

Quality control is an expensive and time-consuming process, but the responsible drug manufacturer supports it generously because he knows that its proper functioning is a reflection of his integrity. At the same time it affords a golden opportunity for the sharp operator to cut corners, since a product of inferior quality can bear the outward appearance of a quality product. The counterfeiter, of course, skips the entire procedure.

The conscientious drug manufacturer is at all times aware of his responsibilities to the doctor and to the patient. The physician's confidence in his products and, in turn, the patient's confidence in his doctor are of the same order and must not be betrayed. Adequate quality control is the best assurance that these confidences will be maintained.

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere will be subsequently authorized in the discretion of the Editor.

Correspondence: Address all correspondence relating to publication of scientific papers to the Managing Editor.

Manuscript: Type double spaced, on white paper, 8½ by 11, with one-inch margins at the top, bottom, and right, and 1½ inches on the left. Submit the original. Call drugs by their generic names. The trade names can be added, in parenthesis, if they are considered important. Keep one copy of the paper.

Footnotes and References: Use the style of the *Quarterly Cumulative Index Medicus* published by the American Medical Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

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Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.

The Editorial Board is particularly pleased to present to the members of the Kansas Medical Society this issue, made up entirely of papers presented at the Regional Meeting of the American College of Physicians, at Emporia, on February 23, 1962. This is the first issue devoted exclusively to the papers from this organization, and we hope that it may become a regular feature. We also hope that it may be a stimulus to other organizations to offer papers presented at their own meetings for publication in a similar fashion.

We are particularly grateful to John L. Morgan, M.D., of Emporia, one of the active members of our Society, for the efforts which he put forth to bring this issue into being. The original idea of submitting the papers was his, and it was through his efforts that they were obtained and are here offered. To Dr. Morgan we offer sincere appreciation for a job well done, with his only incentive being to make available to the physicians of Kansas a group of papers containing useful information.

The members of the American College of Physicians in Kansas deeply appreciate the opportunity to publish these papers from the Regional Meeting of the College in Emporia. John L. Morgan of Emporia was program chairman. Each year 120 to 150 physicians interested in Internal Medicine, both members of the College and guests, gather for a day devoted to medical education, with papers and panel discussions presented by members of the College or their guests.

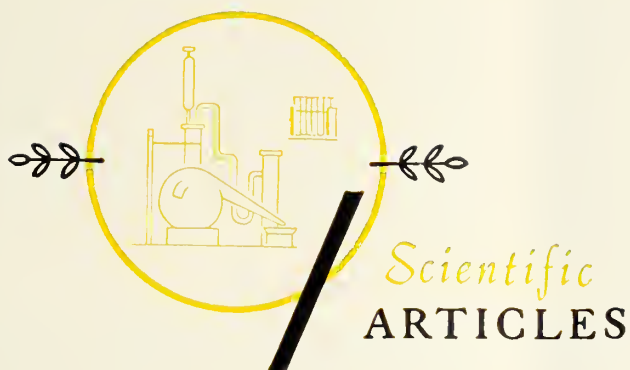
In 1961, under Program Chairman D. R. Bedford of Topeka, abstracts of the papers which were presented at the annual meeting in Topeka were published in the JOURNAL. This year Dr. Morgan arranged for publication of the papers as presented. All of us are pleased to have a part in presenting these to the readers of the JOURNAL.

It would seem fitting to explain some of the activities of the American College of Physicians for readers of the JOURNAL who are not acquainted with this organization. It consists of some 7,000 members in the North American continent, and a few members in South America and other foreign countries, most of whom have been elected to honorary membership. The American College of Physicians was founded in 1915 and according to the Constitution, its object is "... to establish an organization composed of qualified physicians of high standing who shall meet from time to time for the purpose of considering and discussing medical and scientific topics, and who through their organization shall attempt to accomplish the further purposes of: (a) maintaining and advancing the highest possible standards in medical education, medical practice and clinical research; (b) perpetuating the history and best traditions of medicine and medical ethics, and (c) maintaining both the dignity and the efficiency of Internal Medicine and its relationship to public welfare."

Membership in the American College of Physicians has been extended to include allied specialties of Pediatrics, Neurology, Psychiatry, Pathology, Radiology, Public Health and others. Undoubted proof of personal and professional qualification is derived from the candidate's training, experience in practice, hospitals and teaching appointments, scientific contributions or from other evidence submitted. Membership is not limited to a group of highly restricted specialists, but is available to qualified teachers, investigators and practitioners.

Once each year the American College of Physicians holds an Annual Session for the entire organization, and next year it will be in Denver, from April 1 to April 5. The next Kansas Regional Meeting of the College will be at Wichita, February 22. Physicians interested in Internal Medicine, whether or not they are specialists in this field, are cordially invited to the Kansas Regional Meeting and may attend the Annual Session upon recommendation of a member of the College.

Fred J. McEwen, M.D., F.A.C.P.
A.C.P. Governor for Kansas.



Dextro-Thyroxine and Cholesterol

Dextro-Thyroxine Therapy in Patients With Hypercholesterolemia and Arteriosclerotic Heart Disease

FRANK C. BROSIUS, JR., M.D., *Wichita**

IT HAS BEEN KNOWN for some time that a striking reduction in serum lipids results from the administration of various thyroid substances. Desiccated thyroid or the pure natural hormone, levo-thyroxine, will reduce the serum cholesterol when given in sufficient dosage.¹ However with continued use of these two substances there is an apparent "escape," and the reduction of the serum lipids is not maintained. This "escape," which is thought to be due to inhibition of endogenous thyroid production, usually is manifested by the end of six weeks and is complete by 24 weeks.¹ If an attempt is made to increase the dose, hypermetabolism may occur and in patients with arteriosclerotic heart disease this often results in an increased frequency of angina, and may even be associated with infarction of the myocardium.^{2, 3} These two substances, desiccated thyroid and levo-thyroxine, are therefore unsatisfactory for use as cholesterol lowering agents.

Various thyroid analogues have been studied and found to be effective in lowering serum cholesterol. Some of these analogues appear to exert a definite cholesterol lowering effect which is not accompanied by corresponding calorogenic effect or myocardial stimulation at moderate doses. Of these analogues dextro-thyroxine has been used with success in lowering

blood cholesterol in most euthyroid patients and appears to be the best of these available at this time. Pitt-Rivers and Lerman have reported that the calorogenic effect of dextro-thyroxine is one-tenth that of levo-thyroxine. At the dosage level used, 4 to 8 mg. per day, apparently there is little, if any, calorogenic activity and the amount of iodine taken apparently is

This study demonstrates, as have others, that dextro-thyroxine is an effective agent for lowering blood cholesterol. However, a rather high incidence of severe complications occurring with its use in patients with arteriosclerotic heart disease is clearly apparent. This drug cannot be recommended for use in such individuals. Occurrence of angina during administration is indication for immediate cessation of therapy.

The ideal instance for use of the drug is perhaps the myxedematous patient with hypercholesteremia and angina who cannot tolerate the natural hormone. The value and safety of long term therapy with this agent in patients with hypercholesteremia with no other abnormalities is yet to be determined.

* From the Department of Cardiology—Wesley Hospital and Wesley Medical Research Foundation, Inc.

too small to be associated with side effects, and according to Starr a dose of dextro-thyroxine 50 times the usual therapeutic dose of levo-thyroxine will lower the serum cholesterol with little if any calorigenic effect.⁵ The less active formic acid analogues, while effective in lowering blood cholesterol are associated with a rather high incidence of side effects as a result of their relative high dosage and iodine content.¹ Such effects as diarrhea, cramping, abdominal pain, skin eruptions and salivary swelling which may occur with these analogues have not been reported in patients receiving dextro-thyroxine.

The disproportionate effect of the D-isomers on blood cholesterol may be possibly explained by an experimental observation. Following administration in rats higher concentrations of the D-isomers are found in the liver than in the heart and skeletal muscle as compared with the L-isomers.⁶ Since the liver plays a dominant role in regulation of the plasma cholesterol the effect of the D-isomers may be related to its high concentration in this organ. Although the exact mode of action of dextro-thyroxine is not known, further evidence for a different mechanism of action as compared with L-thyroxine has been demonstrated clinically. Thus, Starr reported in a myxedematous patient with hypercholesteremia and angina, complete regression of angina and significant lowering of blood cholesterol using 4 mg. D-thyroxine daily.⁷ Previous therapy with L-thyroxine had not controlled the angina nor altered the hypercholesteremia.

Several investigators have already reported on the administration of dextro-thyroxine to euthyroid patients with hypercholesteremia; some with and some without arteriosclerotic heart disease.^{1, 3, 5, 8, 9} The effective dose varied generally from 4 to 8 mg. daily, and resulted in significant lowering of blood cholesterol in four to six weeks. After reduction was obtained further dosage increase failed to lower the cholesterol further unless a state of hypermetabolism was induced. In those patients with arteriosclerotic heart disease, angina was infrequently reported at doses of 5 mg. per day or less, but became more frequent at the higher dosage schedules. With prolonged therapy there was some apparent loss of effect manifested by higher blood cholesterol levels six months after therapy as compared with two months and a further increase in cholesterol was present at the end of 12 months. Increase in the B.M.R. and slight weight loss were reported after therapy, especially with the higher doses. One death has been reported in a patient receiving 8 mg. per day who had suffered a previous myocardial infarction. Autopsy was not obtained and clinical information was too scanty to make any conclusion regarding the re-

lationship of therapy and the sudden death. However, Hollister has recently reported two myocardial infarctions occurring in patients receiving dextro-thyroxine. Only scanty information is available regarding the cholesterol levels after D-thyroxine therapy is stopped, but in a few cases the level has been shown to rise sharply. In patients receiving long term anticoagulant therapy a reduction in dicumerol requirement has been reported in one series, after one month of therapy.⁹

Material and Methods

The purpose of this investigation was to extend these observations and to further investigate the effects of dextro-thyroxine. We administered the drug to a group of euthyroid, arteriosclerotic patients most of whom were hypercholesterolemic.* Two treatment periods were utilized with an intervening rest period during which no drug was given. All patients were seen at two-week intervals throughout the study. Resting pulse and blood pressure (sitting) was recorded by the same observer on each visit. In addition, a record of body weight, deep tendon reflexes, tremor and other signs of hypermetabolism was kept and each patient carefully questioned regarding any symptoms of hypermetabolism, especially angina. Periodic laboratory studies included serum cholesterol, total lipids, phospholipids, radioactive iodine uptake, B.M.R., and the thyroxine binding capacity of the serum proteins. Cholesterol determinations were run in duplicate throughout the study save for the control period when at least three separate determinations were required to establish the baseline. The urinary excretion of 17-ketosteroids, ketogenic steroids, and pregnanetriol was also measured periodically during the study.

During the first treatment period of six months placebo and D-thyroxine were given to eleven patients in a double blind fashion. Of these, nine men and two women, the age range was from 48 to 60 with an average of 55.3 years. All had proven arteriosclerotic heart disease—four with classical angina and seven with previous, documented myocardial infarction.

The serum cholesterol values of these patients ranged from 214 to 407 with an average of 290. Three patients had blood cholesterol levels below 250 mg. per cent during the three-week control period preceding the study. They were nonetheless continued in the project because of known, previously consistent hypercholesteremia.

* We are indebted to Thomas A. Garrett, M.D., Medical Director of Baxter Laboratories, Inc., Morton Grove, Illinois, who kindly supplied the medication used and who materially assisted in payment of the costs of laboratory procedures.

Each patient received D-thyroxine, 4 mg. per day, and placebo for approximately equal periods (*Figure 1*). As demonstrated by *Figure 1* the serum cholesterol was reduced in all but one individual after D-thyroxine administration, the average reduction being 17 per cent below the control value. On the other hand, placebo administration resulted in no decrease of the serum cholesterol in any instance (*Figure 2*). With one exception none of the patients in this first group experienced increase in angina, weight change or signs of hypermetabolism. This one exception was a 55-year-old white male with a diagnosis of aortic stenosis, angina and hypercholesteremia who died suddenly in the fifth week of treatment with 4 mg. D-thyroxine per day. Autopsy disclosed aortic stenosis, advanced sclerosis of the left coronary artery, and anoxic changes in the myocardium. No definite infarction was noted. Following a rest period of two to three months D-thyroxine was given again to nine patients of the original group and to six additional cases. Of these 15 cases, 13 had proven arteriosclerotic heart disease. Two patients were lost to the study; one, already mentioned, died suddenly; and the other suffered a stroke during the rest period when no medication was being given. All patients

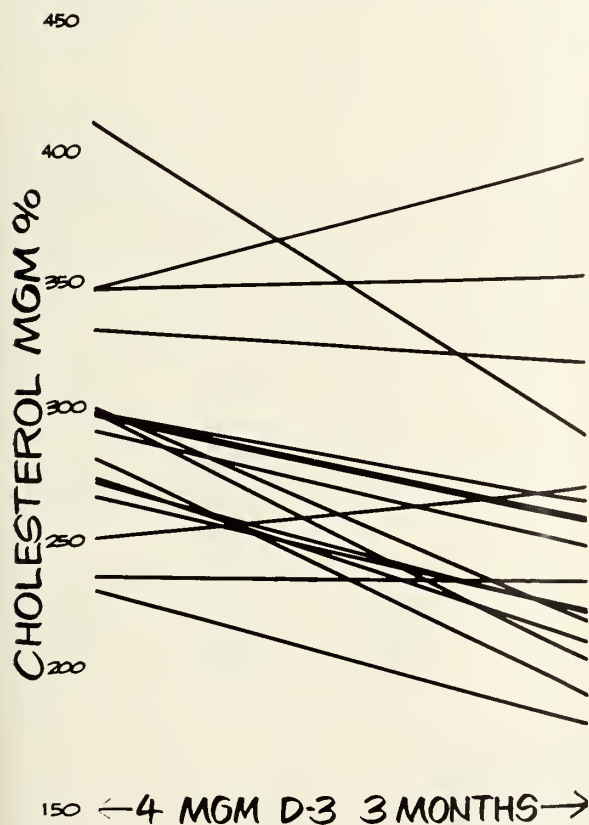


Figure 1

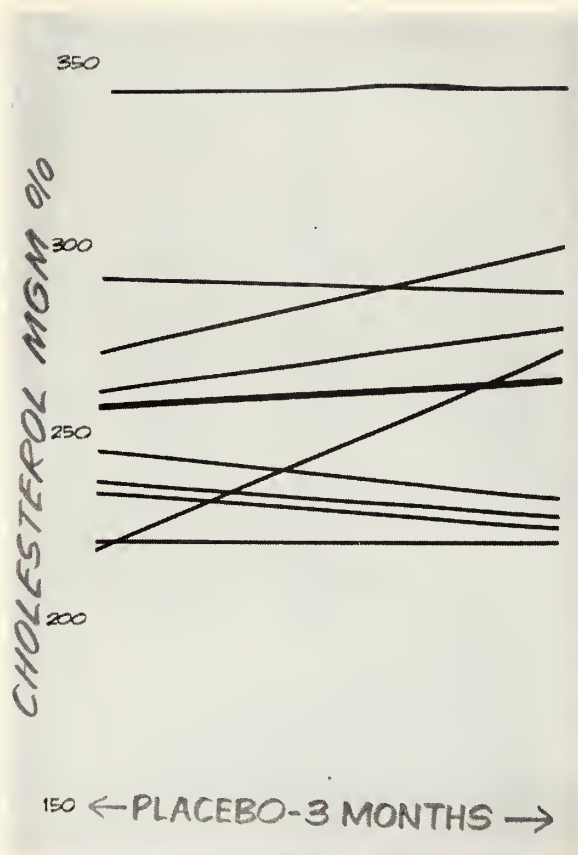


Figure 2

in the second treatment period received 4 mg. D-thyroxine for three months, after which time the medication was increased to 8 mg. for two additional months. As indicated in *Figure 3* the effect on blood cholesterol was much less significant in those receiving treatment for the second time. However, almost without exception, lowering of blood cholesterol was achieved by increasing the dose from 4 to 8 mg. per day. This was an average decrease of 50 mg. per cent or almost 18 per cent lower than the level achieved with 4 mg. per day. Four to six weeks after cessation of therapy cholesterol determinations were performed again in 13 of the 15 patients. In every instance the blood cholesterol was higher at this time, indicating some "rebound" effect. The average increase was 100 mg. per cent, with six patients showing a rise of over 100 mg. per cent and only two patients showing a rise of less than 50 mg. per cent. Of greater significance, perhaps, was the finding that in eight of the 13 cases this "rebound" level was the highest observed during the entire treatment period.

The overall effects of therapy during the entire observation period can be demonstrated by showing three rather typical case summaries.

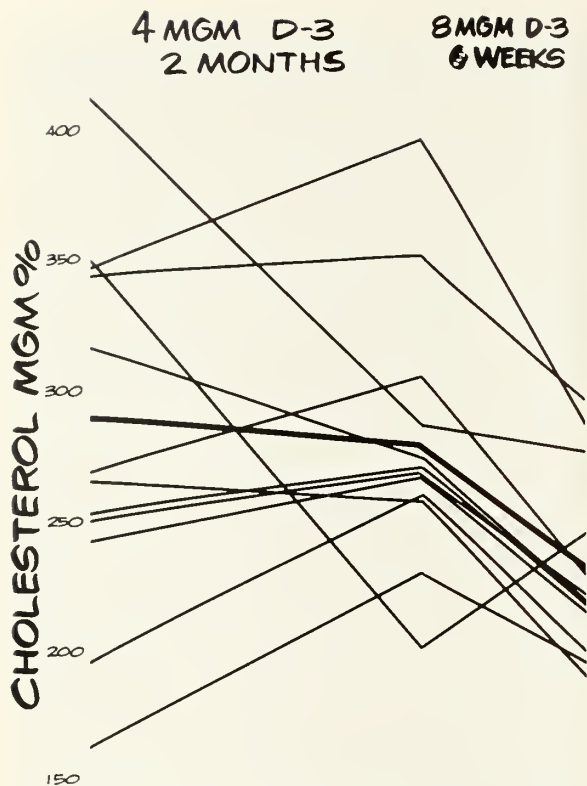


Figure 3

Figure 4 represents a 48-year-old white male with known hypercholesterolemia, xanthelasma, and angina for 15 years. The blood cholesterol in 1957 was 376 mg. per cent. This patient did well during the initial treatment period and had a reduction of his serum cholesterol level of 16 per cent below control. During the second treatment period there was a fall of serum cholesterol after therapy with 8 mg. per day. During this time he noted increasing angina and two weeks later developed a fatal myocardial infarction. Note the slight weight loss and the increase in basal metabolic rate while on 8 mg. per day. This patient, contrary to previous instruction and warning, continued to use D-thyroxine in the face of increasing angina; and illustrates the chief danger associated with these drugs.

Figure 5 is the graphic summary of a 58-year-old white male with a known previous myocardial infarction, who had been receiving one grain of desiccated thyroid daily for several years. Note the lack of significant effect on weight, total lipids or B.M.R. after therapy with either treatment schedule. This patient noted a slight increase in number of stools from one to two daily and transient nervousness during therapy. These were the only side effects. There was no evidence otherwise of hypermetabolism. He

demonstrates the lack of effect of therapy on total lipids which was observed for the entire group. In only three of the 15 cases was the total lipid value lowered by therapy.

Figure 6 represents a 53-year-old white male who had a previous myocardial infarction and angina. This patient had a slight transient increase in angina with the lower dosage, and a greater increase with the 8 mg. dosage. The angina decreased when treatment was stopped. Resting pulse, weight and B.M.R. were not altered significantly during the study. There was a slight (not shown), but definite decrease in serum phospholipids after therapy. This slight decrease was representative of the entire group in which a slight fall was observed.

Data not shown on these figures include the results of therapy on excretion of 17-ketosteroids, and ketogenic steroids. The urinary excretion of these steroids has in no case shown any tendency to decrease after five to six months of therapy. The excretion of ketogenic steroids has, in fact, slightly increased following therapy. We have tentatively concluded, therefore, that there is as yet no evidence of a significant effect of therapy on adrenocortical function. The effect of therapy on the T-3 binding capacity of the serum has been too variable to permit any conclusions. Of five patients receiving long term anticoagulant therapy, three had a definite decrease in daily requirement during therapy. The other two patients demonstrated no change in this regard.

Summary

Dextro-thyroxine administered in a daily dose of 4 mg. resulted in a significant reduction in serum cholesterol levels. Retreatment with 4 mg. daily following a rest period did not significantly alter the blood cholesterol, but significant reduction was obtained by increasing the daily dose to 8 mg.

Four to six weeks following cessation of therapy a "rebound" effect was noted. The average serum cholesterol rise at this time was 100 mg. per cent.

No significant effect on total lipids was observed during therapy with D-thyroxine at either dosage. There was a slight decrease in serum phospholipids during therapy.

Two patients died while receiving dextro-thyroxine therapy. One had a myocardial infarction with sudden death. The other died suddenly and post mortem revealed aortic stenosis and coronary artery sclerosis without evidence of thrombosis or infarction. Two additional cases had an increase in angina while receiving D-thyroxine especially with the 8 mg. dosage. One patient had a non-fatal myocardial infarction while on placebo therapy.

Some metabolic effect was noted as manifested by

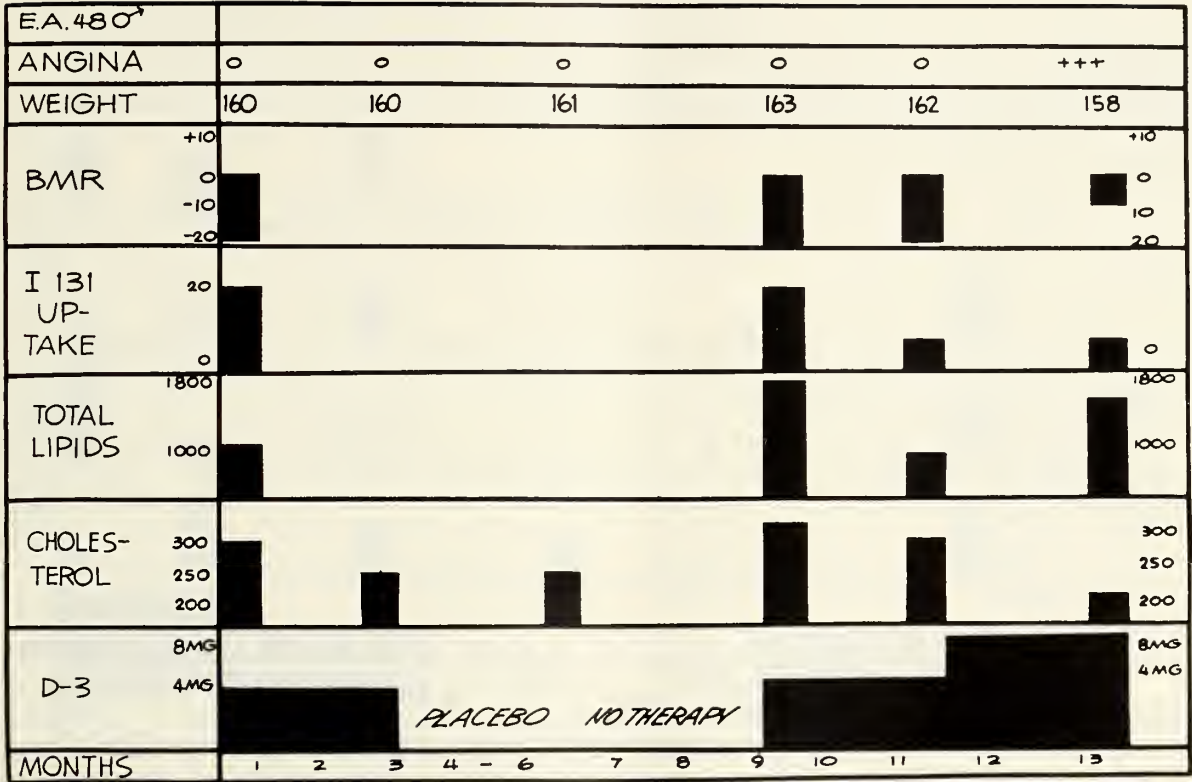


Figure 4

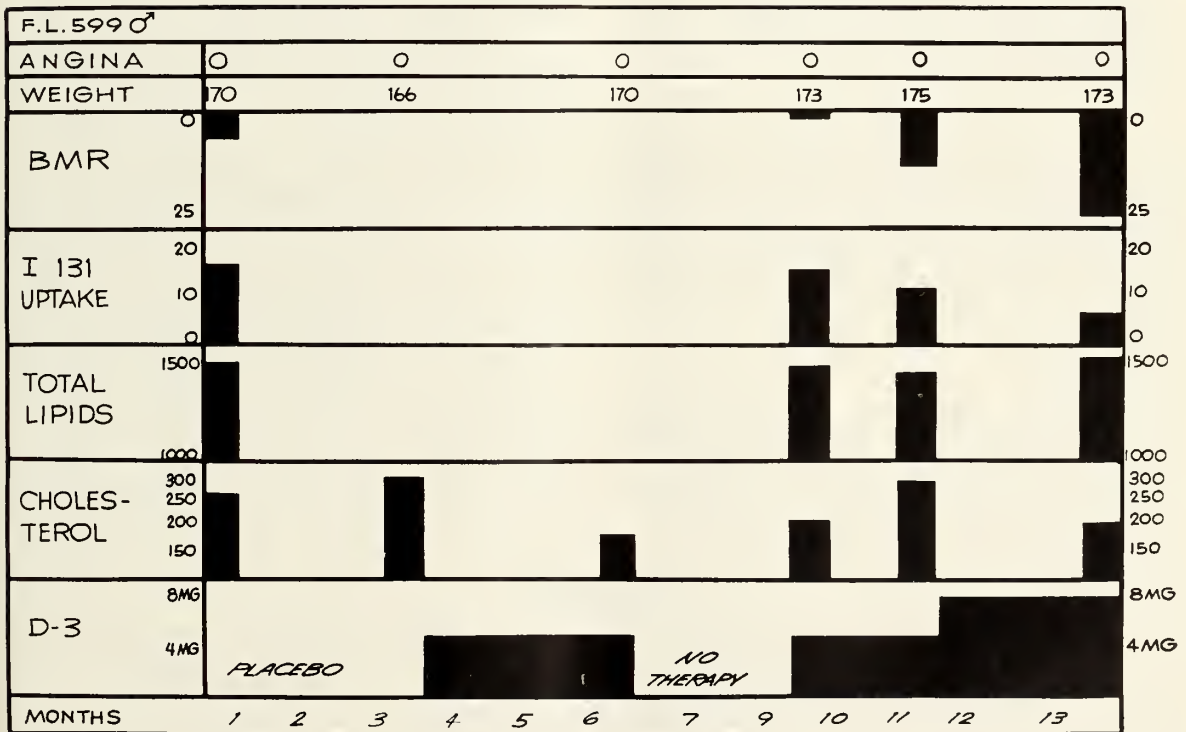


Figure 5

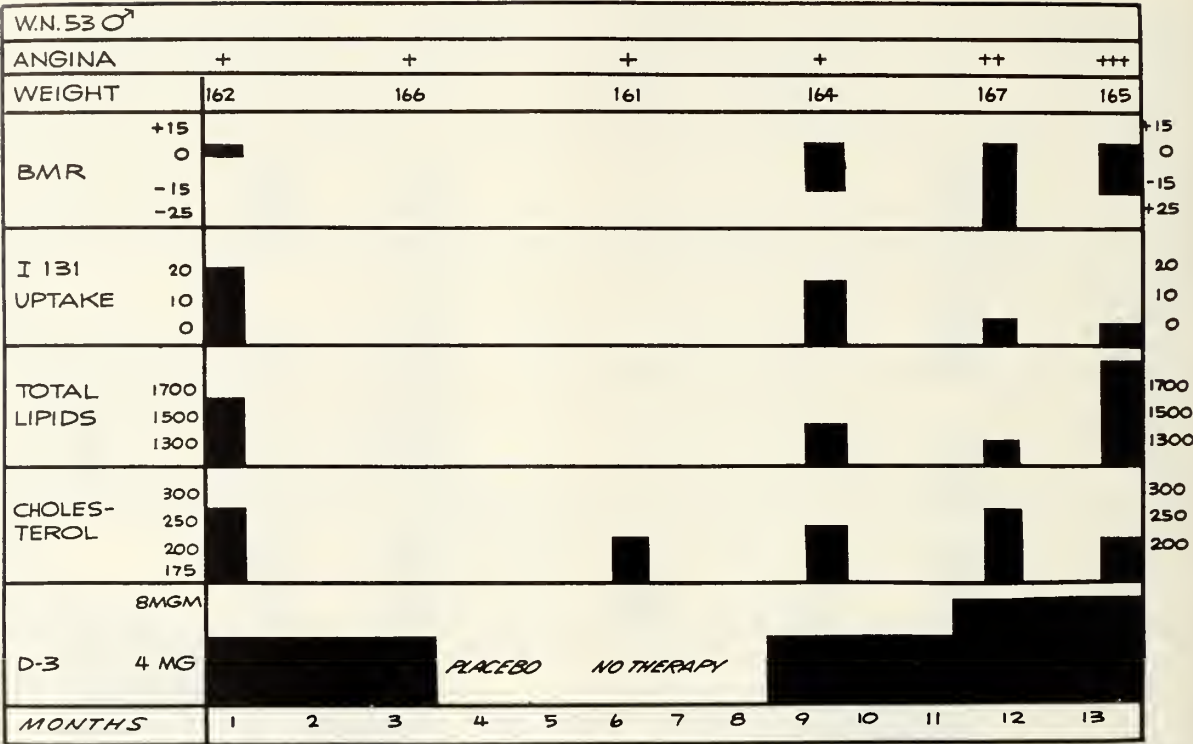


Figure 6

a rise in the B.M.R. of two-thirds of the cases after two months of therapy with 8 mg. per day.
Therapy had no effect on adrenocortical function as measured by urinary steroid excretion.

Acknowledgement

I wish to thank Dr. Ernest W. Crow and Dr. Harvey A. Tretbar for their helpful advice and suggestion. I am also indebted to Dr. Leo P. Cawley, Clinical Pathologist and Associate Director of Laboratories, Wesley Hospital, Wichita, Kansas, who directed the laboratory procedures throughout the study.

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Mononucleosis?—Lymphoma?

The Mimicry of Infectious Mononucleosis and Malignant Lymphoma

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ALTHOUGH INFECTIOUS mononucleosis is usually an easily recognizable benign disease, there may be complicating factors that cause it to mimic other pathological processes. Thus, this relatively benign disease may resemble the malignant lymphomas.

As more refined techniques have been developed, the diagnosis of infectious mononucleosis has become possibly more scientific. Mistakes will still be made as there are no tests for the identification of the unknown causative agent. When certain disturbing features appear in both the clinical and hematologic findings, one may then wonder if the diagnosis is correct. Could it be a malignant lymphoma—or is it mimicry?

One occasionally observes a young adult patient with the generalized lymphadenopathy of infectious mononucleosis in whom a lymph node biopsy has been done without the delay of obtaining other diagnostic data. The pathologist may report that the lymph node is a highly malignant lymphoma. The microscopic picture may vary from a predominately follicular hyperplasia to a blurred pattern that simulates a malignancy.¹⁻⁵

When all of these factors have been considered, one might state that a lymph node biopsy in this benign infectious disease is a very disturbing complication. It is very difficult to ignore the pathologist's report—until one remembers to analyze the entire syndrome. This is an acute, febrile, infectious disease usually found in the young adult who has a sore throat, enlarged tonsils, palpable lymph nodes, and possibly an enlarged spleen. The clinical course is that of such a disease, not a malignancy.

A total of 147 cases of infectious mononucleosis were admitted to the University of Kansas Medical Center in a ten year period from 1951 to 1961. This does not include those observed as outpatients. A diagnosis had been made of leukemia or malignant lymphoma in 14 patients, four of whom had lymph node biopsies. In two additional patients a lymph node biopsy was done to observe the disturbed nodal pattern. These 16 patients are presented in this study.

The clinical signs and symptoms of infectious mononucleosis may mimic those of a highly malignant lymphoma.

The typical peripheral blood findings, and a positive heterophile agglutination, may not always be present in infectious mononucleosis. It is then that some doubt may exist as to whether or not a patient has a benign or a malignant disease. A bone marrow biopsy is an important diagnostic aid and it is essentially normal in a benign disease.

A lymph node biopsy in infectious mononucleosis may be a complication in that the findings simulate those of acute leukemia, lymphoblastoma, and reticulum cell sarcoma.

The correct diagnosis in infectious mononucleosis can be made only if the clinical and hematological aspects of the patient are completely and thoroughly analyzed and correlated.

Clinical and Hematological Data

All of these 16 patients were ill enough to be hospitalized. Fourteen were referred because a diagnosis of a malignant disease had been considered. The confusing features were both clinical and hematological. Some of the statistical data are given in the accompanying table.

This is primarily a disease of young people, only four being over 20 years of age. Only one was over 30, this being a white male of 64 years! No wonder a malignant disease was considered in this individual.

The pertinent hematologic data are given in the table. An absolute lymphocytosis was noted in every patient. One never really becomes accustomed to observing these very abnormal cells in the peripheral blood smear and calling them benign. Early in the disease the cells are large and bizarre (*Figure 1a*), and there is a tendency to variation in size and staining reaction. Somewhat later the cells have a different appearance such as those in *Figure 1b*. In some in-

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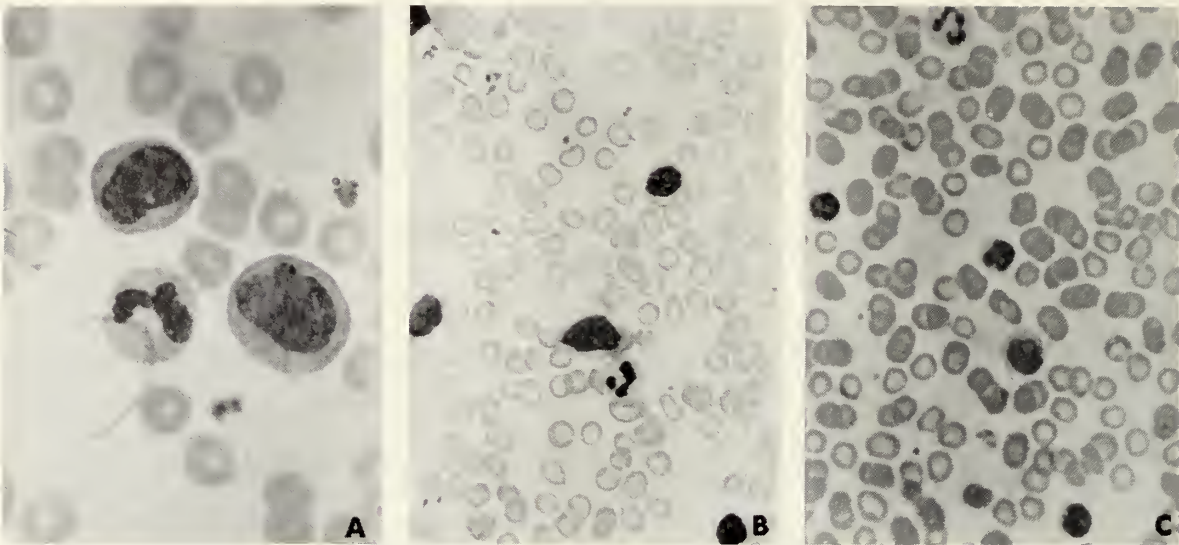


Figure 1. A. Large young lymphocytes observed in the acute stage of infectious mononucleosis. B. Lymphocytes observed when disease is subsiding. C. Small lymphocytes in the late recovery period.

stances, particularly true in late stages of the disease, the variation in size and staining reaction seems to disappear, and then the cells tend to show a monotonous duplication. This phenomenon is shown in Figure 1c, and is somewhat disturbing to the person who has the responsibility of making the final diagnosis.

The degree of leukocytosis is of interest (Table I). The total white cell count was below 10,000 per cu. mm. in five subjects. Thus, a striking leukocytosis was

not observed, the highest level being 26,700 in a six-year-old girl.

The hemoglobin values were below 10.0 gm. per cent in five patients. An elevated reticulocyte count was present in four patients, the range being from 3.0 to 19.4 per cent.

The platelet levels were well below normal (225 to 325,000 per cu. mm.) in seven subjects. In these the range was from 69,000 to 168,000.

The Paul and Bunnell heterophile agglutination

TABLE I
INFECTIOUS MONONUCLEOSIS (CLINICAL AND LABORATORY DATA)

Patient	Sex	Age	Nodes	Spleen	WBC		Heterophile Aggl.	Miscellaneous
					cu. mm.	Lymph %		
* V C	M	6	+	-	20.1	78		
P P	F	2	+	+	9.7	72	1:28	Hgb. 8.2 Retic. 19.4%
M H	F	20	+	+	7.8	83	1:256	Hgb. 8.8 Retic. 3.0% Pl. 98,000
L S	M	64	+	+	12.7	76	1:7168	Pl. 159,000
E J	M	25	+	+	11.1	76		
* L G	M	19	+	-	17.9	62	1:896	Pl. 143,000
L W	F	6	+	+	26.7	74	1:128	Hgb. 9.9 Pl. 168,000
R S	M	7	+	+	17.2	83	1:128	Hgb. 9.9 Pl. 147,000
E V	M	20	+	-	15.2	53	1:28	Pl. 69,000
* C K	M	19	+	+	8.7	63	1:224	Pl. 114,000
C B	F	6	+	+	12.0	85	1:8198	Hgb. 10.7 Retic. 4.0%
L A	M	10	+	+	7.3	65	1:32	Hgb. 8.8
B W	M	9	+	+	8.4	75	1:1024	Hgb. 10.1 Pl. 158,000
* L C	F	16	+	+	16.8	71	1:56	Retic. 3.8% Pl. 136,000
* B B	F	29	+	?	12.4	67	1:224	
* J D	F	23	+	+	23.3	77	1:448	

* Lymph node biopsy
Hgb. = Hemoglobin gm.% Pl. = Platelets per cu. mm.
Retic. = Reticulocytes %

titers varied from 1:20 to the high value of 1:7,168.

These individual factors seem unimportant until studied and correlated in an individual patient. An example is C. K., a white, young, adult male of 19 years, with palpable lymph nodes and spleen. The platelet count was 117,000. A lymph node biopsy had been called a lymphoblastoma, probably associated with leukemia.

The Bone Marrow Biopsies

An aspiration biopsy of the marrow was obtained in every patient in whom there was a question as to whether or not a malignant disease existed. The usual biopsy site was the sternum.

The immediate impression was that of an absence of infiltration and replacement of normal tissue by abnormal malignant cells. The biopsies were essentially normal. The ratio of myeloid and erythroid cells and the maturation sequence was essentially normal except in those patients with an anemia and an elevated reticulocyte count. In these an erythroid hyperplasia was noted. Occasional lymphocytes were observed. Megakaryocytes existed in normal numbers and stages of maturation. *Figure 2* illustrates the marrow in these patients.

The Lymph Node Biopsies

It is here that considerable trouble was encountered. A diagnosis had been made of a malignant lymphoma at sometime or another in each of the four patients in whom a biopsy had been made. Diagnoses included reticulum cell sarcoma, lymphoblastoma, lymphosarcoma, and lymph node compatible with lymphoblastic leukemia.

The lymph nodes obtained from our two very cooperative patients were indeed of special interest. The diagnosis was known to be infectious mononucleosis. The pathologists had no difficulty when all the clinical and laboratory data were submitted with the lymph node sections. When vague meaningless data were given to the reviewer, the difficulties of diagnosis increased, and invariably it was thought to be a malignant lymphoma.

The histopathologic changes in the lymph nodes were indeed striking. The general architecture varied considerably. An enlargement of active follicles was observed (*Figure 3a*), such as is seen in giant follicular lymphoma. In other sections the follicles were disrupted or absent, the tissue being composed of sheets and cords of cells. Mitotic figures were frequent (*Figure 3b*). Cellular packing of the sinusoids and pulp was a common occurrence. On rare occasions, giant cells with multiple nuclei were observed.

Invasion of the capsule was not uncommon (*Figure 3c*). The penetration of the capsule extended into surrounding adipose tissue. In one area invasion of a vessel was very great.

Discussion

Perhaps it should be realized that the differentiation of infectious mononucleosis and a malignant lymphoma is not a new problem. Several reports appeared from 1920 to 1940.¹⁻⁴ Gall and Stout reviewed this period very well indeed and observed ten patients of their own in whom lymph node biopsies had been obtained. In 1948 Custer and Smith reviewed the subject of the pathology of infectious mononucleosis. Little or nothing has been said since then.

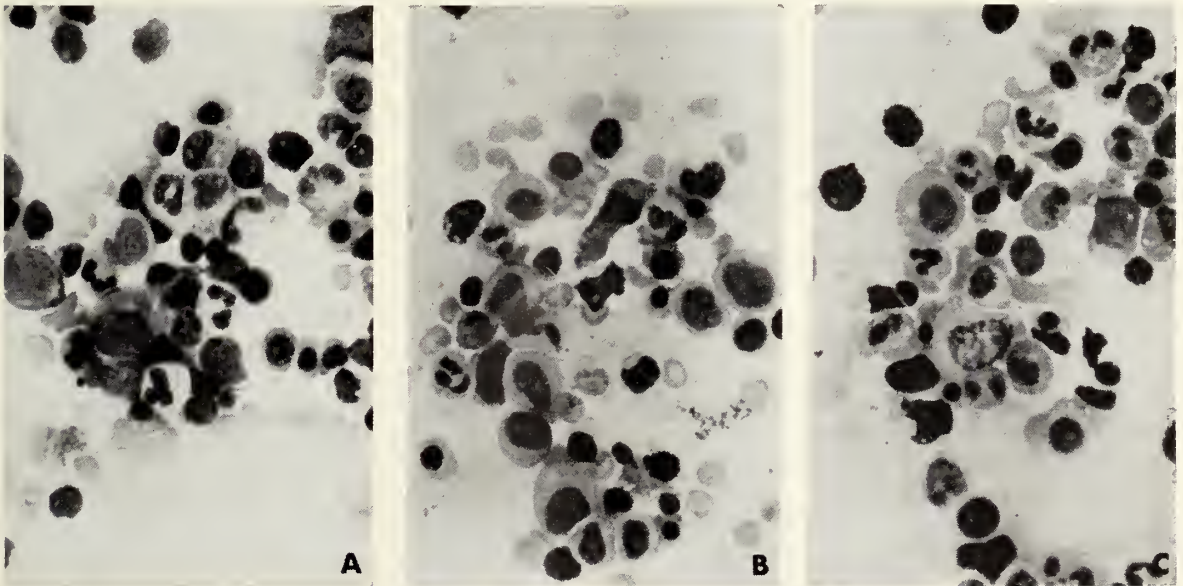


Figure 2. Bone marrow biopsy preparations from three patients with infectious mononucleosis. The maturation sequence and ratio of cells is essentially normal.

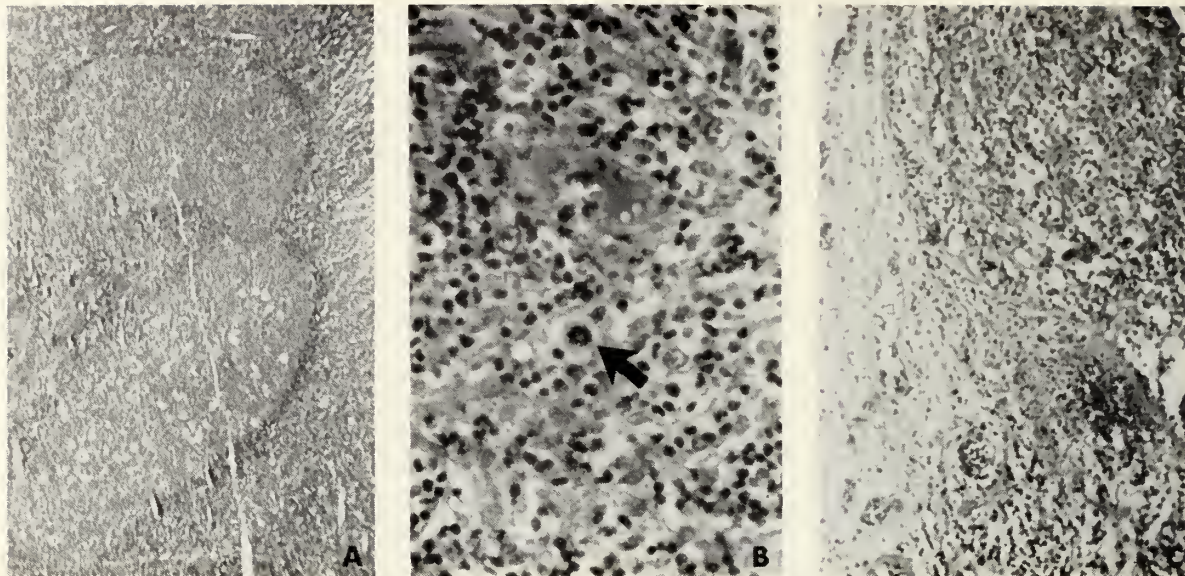


Figure 3. Lymph node biopsy sections in infectious mononucleosis. A. Large budding lymphoid follicles or germinal center. B. Young cells with a large mitotic figure (arrow). C. Capsular invasion and penetration by lymphocytes.

It is startling to observe the peripheral blood smears in this disease. In the more acute stages there is no difficulty in reaching a conclusion that it is a benign process. Later in the disease the cells become small and then one observes an endless duplication of the same type of cell. It is then that the entire clinical picture must be reviewed, and bone marrow biopsies obtained. It is rare indeed to have a normal marrow biopsy in a leukemic patient with lymphadenopathy—particularly rare in the young age groups.

All too frequently the clinician depends on the heterophile agglutination test to decide whether or not the disease is benign or malignant. This test was devised by Paul and Bunnell. Perhaps we had better review their excellent article in which only about 50 per cent of these original patients had a positive heterophile agglutination test! Improvement has been made in our diagnostic tests by the differential absorption test as described by Davidsohn.

It would seem that a complication of infectious mononucleosis is a lymph node biopsy. The histopathologic changes are frequently so typical and consistent with those of a highly malignant lymphoma that it is indeed impressive. That this observation is not new is shown by an experience of the senior author. In 1944 he enrolled in a correspondence course given by the Army Medical Museum—its title, "Certain Lesions of Lymph Nodes." It was prepared by R. P. Custer in 1943, at which time he was a major in the medical corps. One slide was of infectious mononucleosis obtained during the height of the disease process and the comment was, "... is apt to be confused with the early stages of one of the

malignant lymphoblastomas *unless the clinical and hematological aspects of the patient are given due consideration.*" The italics are our own—read it again as we did!

Perhaps the real secret in obtaining a correct diagnosis is in the statement of Custer. The clinical and hematological aspects of the patient must be analyzed thoroughly and completely. All too frequently the clinician gives the pathologist information that is very meager—at times no clinical data are submitted with the specimen. Perhaps we as clinicians almost force him to use crystal ball techniques to reach a diagnosis.

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Post-Myocardial Infarction

Non-specific Pericarditis Complicating Myocardial Infarction

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In 1955, DRESSLER¹ described a complication of acute myocardial infarction mimicking the post-commissurotomy syndrome and idiopathic pericarditis. Clinical features were fever, chest pain, evidences of pericarditis, pleuritis and pneumonitis and a tendency to recurrences. A number of subsequent reports by other clinicians²⁻⁴ supported these observations.

The following two cases are presented to illustrate some of the features of the syndrome.

Case One

A 39-year-old, married, male administrative assistant was bowling on the evening of April 17, 1959, when he was seized with crushing lower substernal pain accompanied by aching in both elbows, weakness, breathlessness and a cold sweat. He was admitted to the hospital where morphine 15 mg. and meperidine 175 mg. hypodermically and morphine 15 mg. intravenously were required for pain relief.

Heart sounds were distant. Apical rate was 70 and there was sinus arrhythmia. Blood pressure was 150/100. Radial arteries were slightly inelastic. An electrocardiogram showed extensive acute anterior wall ischemia and a repeat tracing the following day was diagnostic of a large anteroseptal myocardial infarction. Serum transaminase (SGOT) was 156 units 12 hours after admission. Blood count on the third day showed 18,700 leukocytes.

Treatment consisted of bed rest, oxygen, analgesics and anticoagulation with warfarin. Chest pain was mild on the second hospital day, but on the third day deep breathing was associated with severe substernal pain. A faint, squeaky pericardial friction rub was heard intermittently over the lower sternum. Pain subsided during the next 48 hours and did not recur. Blood pressure was low (approximately 80/60) after the first week. Ambulation was begun after four weeks. Serum cholesterol was found to be 333 mg. per cent. The patient was discharged on May 17, on warfarin and a 20 Gm. fat diet.

Warfarin was discontinued in late July, and soon thereafter, while attending National Guard camp in Minnesota, the patient began to experience exertion-induced, pressing substernal pain relieved by rest. He

In 1955 Dressler, *et al.* described hemorrhagic pericarditis, pleurisy and pneumonia following acute myocardial infarctions. This symptom complex tends to recur at intervals following the infarction and is often confused with recurrent infarction, pulmonary emboli or pneumonia. The author presents two cases with a discussion of the etiology and treatment.

returned home immediately. Repeat electrocardiogram showed no acute changes and he was kept at bed rest for one week and started on nitroglycerine and pentaerythrityl tetranitrate. Symptoms subsided except for occasional fleeting substernal oppression and breathlessness related to exertion. He returned to work. Serum cholesterol on September 8 was 238 mg. per cent.

At midnight on October 29, he developed moderately severe left pectoral aching accompanied by aching and an "asleep feeling" in the left arm. This was not relieved by three nitroglycerine tablets, but subsided spontaneously in 45 minutes. It was replaced by a continuous substernal pressure and aching. This persisted and was observed to be intensified in recumbency, by deep breathing and by sniffing in. An electrocardiogram the following day showed minor changes toward normal as compared to the July tracing. Serum transaminase was normal. On November 1, the patient was re-examined because of persistent discomfort which was interfering with sleep. He had sinus arrhythmia with frequent premature systoles and a rate varying from 100 to 130. Temperature was 100 degrees F. Despite absence of a friction rub pericarditis was suspected and hospitalization arranged.

Leukocyte count was 9,100 and sedimentation rate 62 mm. per hour. Serum transaminase was 42 units in 24 hours and 47 units in 48 hours. Chest x-ray showed high diaphragms due to the patient's inability to take a full breath. Lung fields were clear and

the heart was not enlarged. Electrocardiogram showed occasional nodal premature systoles and mild, diffuse ischemic changes superimposed on the old infarction pattern. Findings were considered consistent with acute pericarditis. A repeat tracing three days later showed slightly deeper inversion of T waves in leads V_2 thru V_5 as the only change.

Treatment consisted of bed rest and analgesics. Chest pain subsided on the second hospital day and did not recur. Temperature reached 100.5 degrees F. on the second day and 99 degrees on the third day but was normal thereafter. No pericardial or pleural friction rubs were heard at any time during the hospitalization. Upon review of the entire clinical course the post-myocardial infarction syndrome of Dressler was suspected. The patient was discharged asymptomatic and without any medication on November 7. In two weeks the sedimentation rate had dropped to 15 mm. per hour. He felt well and returned to work.

On December 24, he noted mild aching in his left arm. This ceased the following day, but he developed persistent lower substernal pain varying in intensity but never severe. On December 28, increase in the pain caused him to leave work early. By evening pain was moderately severe and deep breathing, position changes and leaning forward intensified it and caused it to extend upward beneath the sternum into the throat. Pain was much more severe in recumbency and the sitting posture was preferred. A choking sensation was experienced and eructations were frequent. Temperature rose to 100 degrees F. and the patient was returned to the hospital. The only positive physical finding was a slight, regular tachycardia (rate 104). Sedimentation rate was 58 mm. per hour. Serum transaminase was 18 units on the second day and 35 units on the third day. Chest x-ray was again normal. Electrocardiogram again showed minor changes considered consistent with acute pericarditis. Pain subsided after four days and the patient was discharged on January 3, 1960.

In March, he had a mild exacerbation of substernal pain which prevented him from lying down; however, codeine gave prompt relief and pain ceased after six days.

During the six week period from mid-May until early July he had periodic chest pain accompanied by low grade fever. Pain was estimated to be present about 50 per cent of the time. Sedimentation rate on July 1 was 46 mm. per hour. Methyl prednisolone therapy was instituted, beginning with a dose of 16 mg. daily, and pain ceased within 24 hours. Sedimentation rate was 14 mm. per hour on July 20 and methyl prednisolone was gradually reduced in dose and finally stopped. Since then the patient has had several mild exacerbations of chest pain promptly re-

lieved by codeine and methyl prednisolone given in low dosage and for brief periods.

Case Two

A 57-year-old, married, truck driver was admitted to the hospital on March 27, 1961, with intense, squeezing, lower substernal pain which had developed that morning as he was cranking up the dollies on his truck trailer. An electrocardiogram was diagnostic of an acute, high, antero-septal myocardial infarction. Physical examination revealed a tall, slightly overweight, pale, clammy-skinned man moaning in intense pain. Apical rate was 80 and premature systoles were frequent. Blood pressure was 140/80. Fine, moist rales were present over both lung bases. Leukocyte count was 19,200 with a left shift. Serum transaminase (SGOT) was 18 units on the day of admission, 280 units the second day and 370 units the third day. Blood urea nitrogen was 63 mg. per cent.

Treatment consisted of bed rest, oxygen, low sodium diet, digitalization and maintenance digitalis, quinidine, mercurial injections and anticoagulation with heparin and warfarin. On the second hospital day rales were present over the lower halves of both lung fields; however, by evening the patient was asymptomatic except for residual chest soreness. Systolic blood pressure dropped and ranged between 90 and 110. By the sixth day lung fields were clear. Quinidine was stopped after several days of regular rhythm. On the seventh day severe chest pain recurred and was accompanied by pallor and profuse perspiration. Extension of the infarction was suspected, but transaminase was 37 units 24 hours later and again 48 hours later. Pain subsided over a 72 hour period. Urea nitrogen had fallen to 19.5 mg. per cent after 3 weeks. Chest x-ray during the fourth week showed slight cardiac enlargement. A small effusion behind the dome of the diaphragm was not reported but was evident on subsequent review (*Figure 1*). The patient was allowed out of bed after three and one-half weeks and discharged on April 30 on digitoxin 0.2 mg. daily and warfarin.

Following discharge he developed a dry, hacking cough precipitated by exertion. On May 15, approximately two weeks after leaving the hospital, he developed mild, dull, subapical pain intensified by deep breathing. Examination on the following day revealed postural hypotension with a supine blood pressure of 82/50 and a standing blood pressure of 60/40. When erect he felt quite faint. That night he became breathless. Breathlessness and pain persisted and he was returned to the hospital on May 17. His skin was warm, but pale and moist. He was apprehensive. Percussion note was dull and breath sounds distant over the left lung base. No rales or rubs were heard.

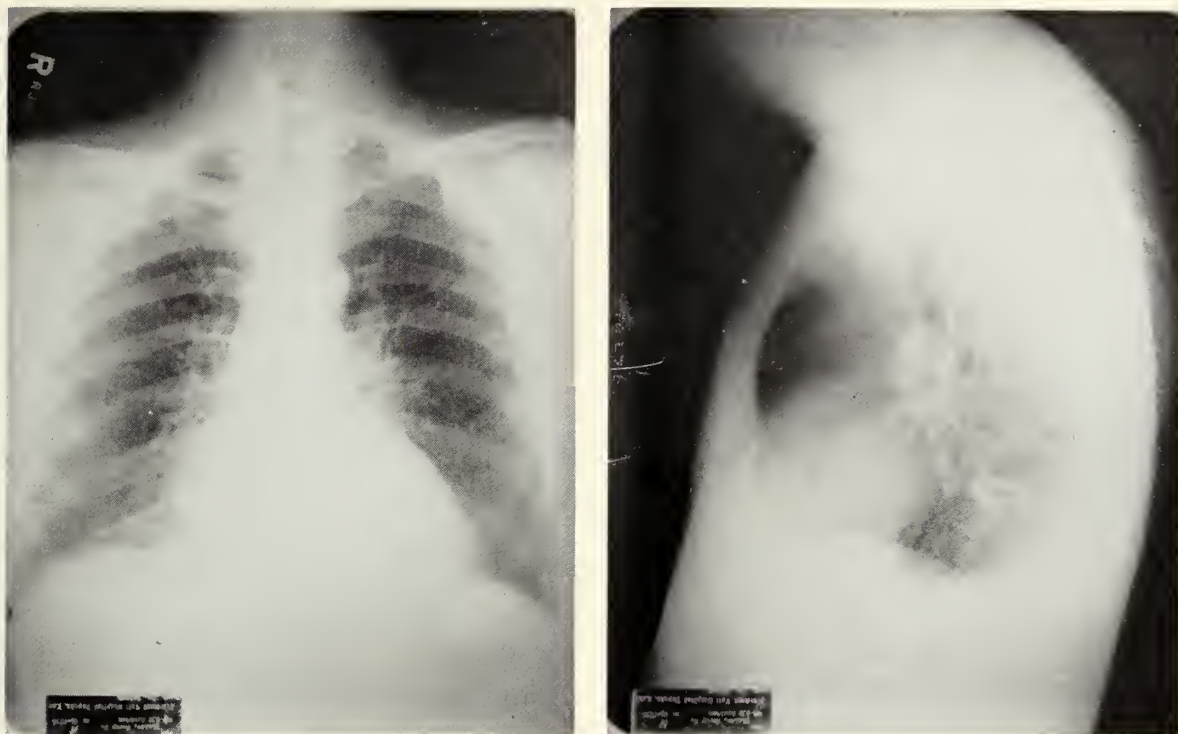


Figure 1. Chest x-rays showing cardiac enlargement. Lateral view shows a small effusion behind the dome of the diaphragm.

The heart was enlarged, its left border being just inside the anterior axillary line. Heart sounds were of good intensity and no murmurs or rubs were present. Rhythm was regular and rate 80. Supine blood pressure was 90/50. Leukocyte count was 10,950. Sedimentation rate was 91 mm. per hour. Blood urea nitrogen was 14 mg. per cent. Serum transaminase was 13 units on the second hospital day and again on the third day. Electrocardiogram showed changes characteristic of previous anteroseptal myocardial infarction plus very low QRS complex voltage in limb and left-sided precordial leads, coving of S-T segments in leads V_2 thru V_5 and T wave inversion in leads I, AVL and V_4 thru V_6 . Chest x-ray showed marked cardiac enlargement and a left pleural effusion (Figure 2).

A pericardial friction rub was heard over the lower end of the sternum on the second hospital day. Chest pain persisted on the third day and was localized to a small area just inside the cardiac apex. It was sharp and was intensified by deep breathing and by movements. Left thoracentesis yielded 900 cc. of straw-colored fluid which proved sterile but which had the characteristics of an exudate. Low grade fever was present on admission. On the basis of the history of recent myocardial infarction and the presence of acute pericarditis, left pleural effusion, fever and

sedimentation rate elevation, the post-myocardial infarction syndrome was suspected.

Treatment consisted of bed rest, salt restriction, maintenance digitalis, mercurial injections, hydrochlorothiazide and methyl prednisolone in an initial dose of 32 mg. daily. Corticosteroid therapy was begun on the third hospital day. Fever subsided within 24 hours and pain within 48 hours. A 15 lb. diuresis ensued accompanied by disappearance of the pleural effusion and a striking reduction in heart size (Figure 3). Serial electrocardiograms showed increase in QRS voltage and S-T and T changes consistent with acute pericarditis. Sedimentation rate had dropped to 45 mm. per hour by June 2. The patient was discharged on that day on 0.2 mg. digitoxin and 12 mg. methyl prednisolone daily. Anticoagulant therapy, which had been discontinued at the time of hospital admission, was not resumed. The sedimentation rate fell to normal and methyl prednisolone dose was gradually reduced to 4 mg. daily. In late August he developed intermittent periapical pain intensified by deep breathing and other movements. No friction rubs were heard and the patient was afebrile, but sedimentation rate was 42 mm. per hour. Corticosteroid dose was increased to 16 mg. daily. The pain promptly ceased and sedimentation rate returned to normal.



Figure 2. Chest x-rays showing marked cardiac enlargement and large left pleural effusion.

The patient is currently receiving 6 mg. of the corticosteroid daily and is symptom free.

Discussion

In 1959, Dressler⁵ reviewed his experience with 44 cases exhibiting this symptom complex which he designated the postmyocardial infarction syndrome. These patients, all of whom had suffered recent myocardial infarction, showed prolonged and recurrent fever and chest pain. Frequent relapses caused prolongation of disability by weeks or months. Such features had previously been ascribed to recurrent myocardial or pulmonary infarction; however, in the patients studied, there were no electrocardiographic signs of an extension of myocardial infarction and no evidences of phlebothrombosis or pulmonary infarction.

Pericarditis accompanying acute myocardial infarction is usually a relatively insignificant feature indicating extension of necrosis to the epicardial surface. Its clinical manifestation, a fleeting pericardial friction rub, is heard in from 10 to 30 per cent of cases. It is usually heard between the second and fourth days of illness, does not tend to recur and is rarely accompanied by pericardial effusion. In the syndrome under discussion, on the other hand, pericarditis represents a major complication which may

overshadow and far outlast the basic illness. Pericardial friction rub tends to occur later (i.e. between the second and 11th weeks), persists for from three days to three weeks or longer and tends to recur. Davidson reported one case with a pericardial friction rub lasting 120 days. Three-fourths of the patients in Dressler's series having adequate records had a pericardial friction rub remarkable either in its late incidence, long duration or both. X-ray evidence of pericarditis, consisting of primary enlargement and secondary shrinkage of the cardiac silhouette, was observed in nearly two-thirds of the cases having serial films. In three cases the presence of effusion was confirmed by paracentesis. Fluid was straw-colored in one and hemorrhagic in the other two. One of the latter died of cardiac tamponade attributed to anticoagulant therapy.

Pleuritis is unusual in uncomplicated myocardial infarction and when it occurs it is apt to be attributed to pulmonary infarction. In Dressler's series pleural effusion was a common finding in the absence of evidence of congestive heart failure, phlebothrombosis or pulmonary infarction. Over two-thirds of the cases having adequate x-ray studies showed signs of pleural effusion which was unilateral in eight and bilateral in 16. The effusions were usually small, but in six patients repeated thoracenteses were necessary. Half of these showed serous exudate and the other

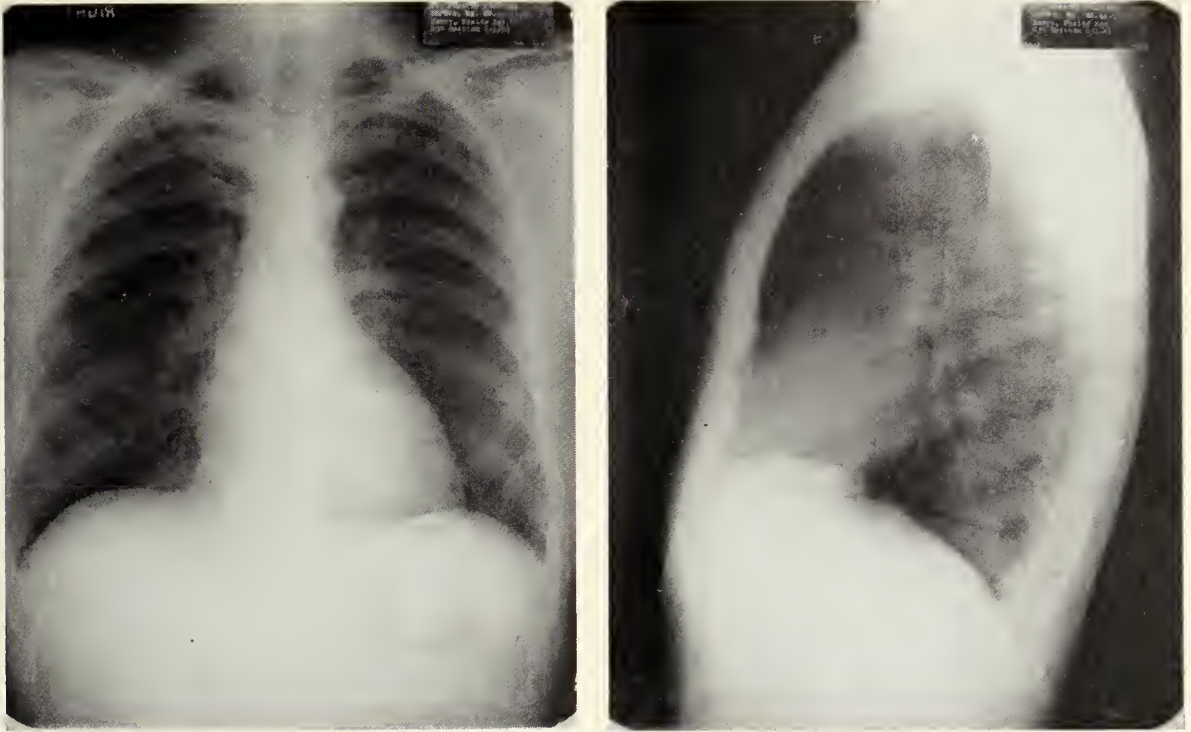


Figure 3. Chest x-rays showing striking reduction in heart size and disappearance of pleural effusion.

half hemorrhagic fluid. One of the latter was receiving anticoagulant therapy.

Pneumonitis occurred in over one-fourth of the patients in the series with adequate clinical and radiologic records. None of these showed obvious evidence of pulmonary infarction or of phlebothrombosis in the lower extremities. One of the patients showed an extensive bilateral bronchopneumonia which failed to respond to antibiotics but which improved rapidly with prednisone therapy.

Fever ranging from 101 to 102 degrees F. is usual and occasional peaks of 103 and 104 degrees F. occur. When fever due to the complication coincides with fever due to the infarction, a second peak occurs or the fever curve may be higher and more prolonged. Fever persisted for 102 days in one of the cases reported by Davidson.

Pain is the most sensitive indication of complicating pleuropericarditis and frequently precedes the onset of fever. Rarely it is absent. If not present during the initial attack it usually appears during subsequent attacks. The character and location of the pain often mimic a coronary attack; however, careful questioning reveals that the pain is intensified by deep inspiration, position changes, yawning, coughing or swallowing. In the first of the two cases just presented pain was consistently aggravated in recumbency.

Elevation of the sedimentation rate, leukocytosis of from 10,000 to 20,000 and neutrophilia are usual. Eosinophilia of as much as 10 per cent has been observed.⁹ Leukocytosis may persist for weeks in contrast to its transitory nature following myocardial infarction. Two cases in Dressler's series showed transaminase elevation unrelated to the original infarction and in the absence of signs of extension of the infarction. Electrocardiographic changes compatible with pericarditis occurred in half of the cases in which an adequate series of tracings was available; however, in the presence of recent myocardial infarction the electrocardiogram was of limited value in differential diagnosis. Serial x-ray studies correlated with careful clinical observation proved most helpful in recognizing the syndrome.

The complication develops early in the majority of cases. Pericardial rub was noted during the first week in over half of Dressler's cases. Pleuropericardial pain likewise occurred within a few days of the infarction in many cases. On the other hand signs of pericardial or pleural effusion did not usually appear before the third week and occasionally not until the 11th week of illness. Episodes of chest pain and fever last from one to six weeks and recurrences are the rule. Duration of the entire illness may vary from one week to a year or more, depending on the number and duration of recurrences. Samaras reported one

case still having episodes after four and one-half years.

Etiology is speculative, but neither the size nor the location of the preceding infarction are important factors. In many respects the condition resembles idiopathic pericarditis and post-commissurotomy syndrome both suspected to represent autosensitization phenomena. Possibly an antigen produced by myocardial necrosis leads, in some persons, to formation of antibodies much in the same way that substances produced by surgical trauma lead to development of the post-commissurotomy syndrome.

Gery, Davies and Ehrenfeld in 1960 reported the experimental production of anti-heart antibodies in rabbits. Antibodies were demonstrated in two of four rabbits by the passive hemagglutination technique; however, no pathologic changes were found in the hearts of these animals. Serum from one of Dressler's earlier cases gave a strong positive reaction. A second serum sample, taken after four years' freedom from attacks, gave a negative reaction. These same workers later demonstrated high anti-heart antibody titers in three additional cases. Two of these suffered recent myocardial infarction and the other had recently undergone mitral valvulotomy. In a few instances post-myocardial infarction syndrome has been associated with eosinophilia, arthritis and indolent subcutaneous nodules,¹¹ additional evidence in support of an autoimmune mechanism. Brach and Ofstad reported two cases with knee and elbow effusions. They proposed that the shoulder-hand syndrome may also be a form of the post-infarction syndrome.

Corticosteroids seem to be almost specific in reversing the clinical and laboratory evidences of the post-infarction syndrome; however, rebounds are frequent after withdrawal and, for this reason, some writers have recommended that this form of therapy be reserved for patients with severe pain or unduly prolonged illness.

Dressler estimates that the complication occurs in from 3 per cent to 4 per cent of cases of recent myocardial infarction. Diagnosis is not difficult when the physician is aware of the clinical features of the condition, and its recognition is important not only because of the excellent response to corticosteroid therapy but also because of the avoidance of much anxiety by the patient and his family. Furthermore, anticoagulant therapy, strongly indicated in cases of extension of myocardial infarction, is contraindicated in the presence of extensive pericarditis. Prognosis is good when the condition is recognized and proper treatment employed.

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TOO MANY DRUGS BETTER THAN TOO FEW

Despite the seeming inefficiencies of free competition, I, as a physician, would rather be deluged with more medical preparations than be forced to sit idle at the bedside of a patient—doing nothing because there are not enough drugs to save lives or comfort my patients. As the president of a pharmaceutical firm, I would rather be accused of trying too hard to market my useful products than to default on marketing and—as a result—lose sales and thereby increase the costs of products to the consumer.—Theodore Klumpp, M.D., in *New Medical Materia*, June 1962.

Immaturity

Sexual Immaturity in the Female: Diagnostic Features With an Illustrative Case Report

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Recent developments in genetics and endocrinology have enabled us to understand and more easily diagnose the causes of sexual immaturity in the female. The syndrome of gonadal dysgenesis has especially been elucidated by this new knowledge. In this syndrome the presence of a male sex chromatin pattern, elevation of the urinary gonadotropins, and absence of estrogen effect upon the vaginal mucosa are diagnostic findings and eliminate the need for laparotomy as a diagnostic procedure. A case report demonstrates how simply these appropriate tests can be utilized in the evaluation of sexual immaturity.

"IT IS IMPORTANT for the clinician to recognize that most of the deviations from the average development encountered during adolescence are due to minor constitutional variations in the endocrine pattern or to temporary imbalances in the secretion of hormones."¹ It is also important for the clinician to recognize clues which indicate an endocrine problem requiring treatment. By understanding the normal variations and having knowledge of some simple procedures which may be performed to distinguish normal variations from more serious endocrine disorders the physician can successfully handle these problems.

Enlargement of the breasts and rounding of the contours of the hips are the first discernible changes in the sexual development of girls and will usually occur between age eight and ten. By the time of menarche at age 11 to 16 the small budding breasts have enlarged to assume a conical shape. The first appearance of pubic hair precedes menarche by a year or more. It is apparent that failure to show any of these developments by the age of 16 is indication for investigation.

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The history of parental and sibling hair growth will help evaluate constitutional differences. The history of serious illness, either chronic or such diseases as mumps may be important. Hypothyroidism may cause a delay in sexual development or scanty hair growth and should be easily recognized.

The pathological conditions associated with sexual infantilism are shown in *Table I*. The hypothalamic lesions with their associated infantilism, eunuchoid proportions, diabetes insipidus, and obesity are usually detectable and are quite rare.

In pituitary deficiency the gonadotropic functions are usually the first to be affected and may predominate. There is dwarfism with sexual infantilism. The ovaries do not mature and there is no evidence of estrogenic activity. The nipples and areolae are infantile and breasts are not developed. The labia and vulva are infantile. An important differential point is the fact that sexual hair does not develop on the labia, pubis, or axillae. Albright² was the first to demonstrate that the hair growth is largely due to androgens secreted from the adrenal cortex of females but is enhanced by the presence of estrogens. The 17-ketosteroid excretion is usually less than 2 mg. per day and the urinary FSH excretion is minimal or absent.

Specific or selective pituitary gonadotropic deficiencies without loss of other tropic hormones has been described by several authors. A recent report

TABLE I

- | |
|---|
| I. Hypothalamic lesions (tumors, cysts, congenital defects) |
| A. Sexual infantilism without obesity |
| B. Sexual infantilism with obesity, diabetes, etc. |
| Froelichs Syndrome |
| Laurence-Moon-Biedl Syndrome |
| II. Pituitary Deficiency |
| A. Generalized with dwarfism |
| B. Specific gonadotropic deficiency |
| III. Primary gonadal disorder |
| Gonadal dysgenesis |

describes a patient having the characteristic abnormalities of Turner's syndrome with only slight urinary excretion of FSH believed to be due to selective pituitary gonadotropic deficiency.³ It must be pointed out that there are laboratory variations in the bio-assay of FSH which must be considered in evaluating these results. In specific hypogonadotropic hypogonadism there should be no reduction in adrenal cortical activity and, therefore, there should be some development of sexual hair.

The third category of impaired sexual development is gonadal agenesis or dysgenesis. The terminology in this category is rather confusing but recent developments have revealed chromosomal abnormalities which make it easier to understand and more appropriately name these conditions.

The gonads develop from two anlagen, a cortical component from the germinal epithelium of the coelom and a medullary component from the mesonephros. The gonadal structure is identical in the two sexes until the seventh week. The cortex has the potentiality of developing into an ovary while the medulla develops into a testis. The fate of the indifferent gonad is established by the balance between the male-determiners and the female-determiners in the genotype. When the sex chromosome complex is XY, male determining genes predominate and the medulla begins to develop, and the cortex to regress, at the seventh week. When the sex chromosome complex is XX, female-determiners predominate and the cortex develops into an ovary. Interference with this crucial step at about the second month of development is the point of departure for most sex anomalies in man.⁴

The European authors began reporting congenital ovarian aplasia as a cause of sexual immaturity as early as 1768.⁵ Albright and Halsted⁶ were the first to recognize and report in American literature a case

of primary ovarian deficiency in 1935. They described a 31-year-old patient who had never menstruated, had no breast development, but had a slight amount of axillary and pubic hair. They demonstrated no estrogen in the urine but found a positive test for Prolan A which was determined by injecting urine preparations into a mouse and noting the effects upon the ovaries.⁷ Since this is similar to our present method of determining FSH it seems appropriate to think that they may have been demonstrating the increased FSH excretion seen in patients with ovarian deficiency.

Turner⁸ reported in 1938 seven cases exhibiting osseous and sexual retardation, webbing of the neck, and cubitus valgus. He is credited with describing the associated anomalies seen with some cases of gonadal deficiency. Although it has been customary to name any primary ovarian deficiency Turner's syndrome, it would seem more accurate to reserve this term for only those cases which have the associated anomalies which Turner described. It is important to note that four of his seven cases were reported to have no axillary or pubic hair. This brings up the possibility that some of these cases may have been actually hypopituitary problems.

Varney and his associates⁹ and Albright and his associates² established the important hormonal characteristics of primary ovarian deficiency when they pointed out the associated high urinary gonadotropin titers. This results from the absence of estrogens to suppress the pituitary gonadotropins.

A review of the literature has produced the list of most frequently described characteristics of the gonadal dysgenesis syndrome listed in *Table II*. With these factors in mind we can devise a table of differentiating factors which will theoretically but not absolutely distinguish between gonadal dysgenesis and pituitary deficiency (*Table III*).

TABLE II

- | |
|---|
| 1. Shortness of stature but not dwarfism |
| 2. Good muscular development |
| 3. Primary amenorrhea |
| 4. Infantile breasts, uterus, vagina, and labia |
| 5. Decreased but not absent axillary and pubic hair |
| 6. Rudimentary ovarian development |
| 7. Elevated urinary gonadotropic hormone |
| 8. Subnormal urinary estrogen excretion |
| 9. Moderate retardation of skeletal maturation |
| 10. Associated congenital anomalies |
| (a) webbing of the neck |
| (b) cubitus valgus |
| (c) coarctation of the aorta |

TABLE III

	<i>Gonadal Dysgenesis</i>	<i>Pituitary Deficiency</i>
Height	Stunted	Dwarfed
Skeletal development	Slight delay	Marked delay
Epiphyseal fusions ...	Present	Absent
Breasts, vagina, labia, uterus	Infantile	Infantile
Axillary and pubic hair	Present	Absent
17-ketosteroids	2-6 mg./day	Less than 2 mg./day
FSH excretion	Increased	Minimal
Sex chromatin	Male in 80%	Female

The literature contains reports of gonadal dysgenesis with variable characteristics demonstrating that the classical criteria are not always present.^{5, 10, 11, 12} These reports simply illustrate the broad spectrum of findings in the syndrome known as gonadal dysgenesis which, at our present level of knowledge, cannot be neatly categorized etiologically. Patients need not be short, sexual hair may be absent or luxuriant, and FSH may be low.

Sex Chromatin

Jost described in 1947 that the removal of the gonads from the rabbit fetus before sexual differentiation always resulted in the production of a female animal. In the absence of the male gonads with their secretion of the "masculinizing evocator substance" the mother's hormonal environment is determinant upon the sex of the offspring.¹³ This led Wilkins and his associates to propose in 1954 that patients with ovarian agenesis might be the counterpart of Jost's castrated rabbits and thereby actually be genetic males. Shortly following this Polani and his associates¹⁵ demonstrated a male chromatin pattern in three cases of Turner's syndrome using the findings of Barr and his associates.⁴

In 1954 Barr and his associates established that there is a sexual dimorphism in the structure of intermitotic nuclei of man and certain other mammals. The difference between the sexes is that a special mass of chromatin is clearly visible in nuclei of normal females but not in those of normal males. The sex chromatin that characterizes nuclei of females is usually adherent to the inner surface of the nuclear membrane and is often so closely related to the membrane as to have a planoconvex outline. It is about 1 micron in diameter. The sex chromatin shares with the rest of the chromatin an affinity for basic dyes and, like the rest of the chromatin, reacts positively to tests for deoxyribonucleic acid. This sex chromatin is demonstrable in 60 to 80 per cent of the cells of a normal female. The buccal smear with a Papanicolaou stain is commonly used for this test. Neutrophils also reveal a sexual dimorphism seen as an accessory nuclear lobule but this is observed in fewer cells than can be found in the buccal smear. It has been shown that 80 per cent of the cases of gonadal dysgenesis have a male chromatin pattern.

Chromosome Factors

Spermatogonia undergo several divisions, including one that is reductional, giving rise to two classes of sperms, one bearing 22 autosomes and an X chromosome, the other 22 autosomes and a Y chromosome. Germ cell maturation in the female produces only one

type of ovum having 22 autosomes and an X chromosome. Fertilization by an X-bearing spermatozoon produces a zygote with female potentialities, while if the sperm has a Y chromosome the zygote has male potentialities.

Human chromosomal aberrations are due either to disturbances in meiotic behavior of the parent gamete with formation of abnormal gametes and zygotes or to mitotic errors during the embryologic development of a normal zygote. The former is believed the most common mechanism for the abnormality seen in gonadal dysgenesis. During anaphase of the first or reductional meiotic division of gametogenesis separation occurs between members of each homologous pair of individual chromosomes. Failure of the members of a chromosome pair to disjoin during anaphase is known as non-disjunction. This phenomenon results in both chromosomes passing into the same nucleus, in which event the other cell receives neither member of the pair.¹⁶ If this occurs to the sex chromosomes there may be a gamete formed containing no sex chromosome. The possible results of this phenomenon are shown diagrammatically in *Figure 1*. When an incomplete sex chromosome is formed (XO), it is incompetent to produce normal gonads. In the absence of the testicular evocator substance the remainder of the reproductive tract develops along female lines in accordance with the principle established by

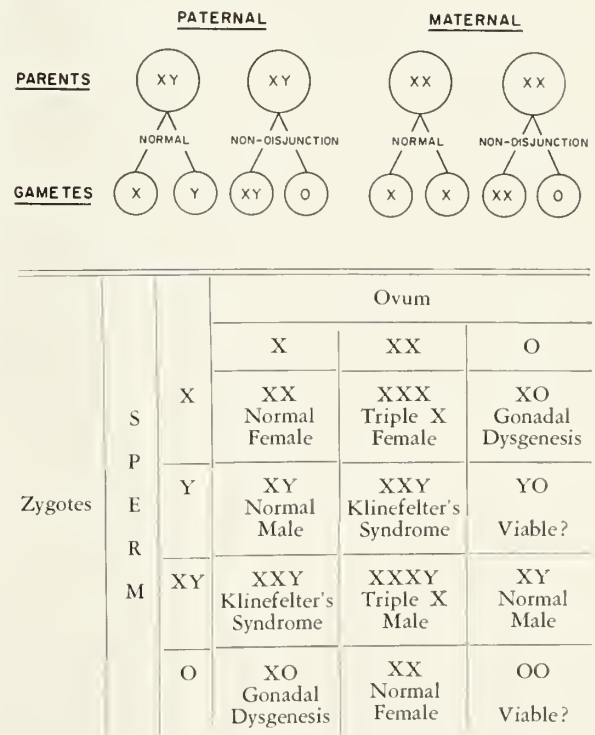


Figure 1.

Jost. The gonadal dysgenesis syndrome results with the presence of rudimentary ovaries. The possibility of an XO constitution in gonadal dysgenesis was postulated in 1956 by Polani *et al.*¹⁷ after an analysis of the incidence of color blindness in these patients. In 1959 Ford *et al.* reported the first chromosome analysis of a case of gonadal dysgenesis and verified Polani's suggestion that these patients have only one X chromosome. Mosaicism, a condition in which two or more stem-lines of cells with different chromosome numbers appear in adjacent tissues of an individual, has also been found to be present in patients with the gonadal dysgenesis syndrome.¹⁶

Treatment

The psychological management of the patient and parents is important. Many of these patients are capable of marrying and enjoying normal sexual relations. It is important to advise these patients at some point that pregnancy is impossible. The finding of a male chromosomal pattern should be withheld from the patient and relatives since this information can only give rise to distress and confusion. Estrogen therapy only is the proper management and this should be instituted at the normal time of puberty, usually age fourteen. Periodic interruption to create menstrual bleeding may be advantageous.

Case Report

This patient was first seen at the age of 17 years and five months with the complaint that she had never menstruated and there had been no breast development. She had developed scanty axillary and pubic hair at age sixteen. Past history revealed that she was the largest at birth of three siblings, all of whom had developed normally. She had measles, chicken pox, and mumps before age eight. She had no history of injury or surgery. Her parents were of normal stature.

Physical examination revealed her height to be 57 inches, weight 87 pounds, blood pressure 126/76, and pulse 78. She was a short, attractive girl with nearly normal female contour. No webbing of the neck or cubitus valgus was found. The visual fields were full. No chest deformity or murmur was found. The breasts were only small sub-areolar tufts with no palpable breast tissue and no pigmentation. There was scanty growth of axillary and pubic hair. The uterus was infantile.

The hemoglobin, white blood count, blood urea nitrogen, glucose, chloride, sodium, potassium, carbon dioxide, calcium, phosphorous, and ¹³¹I uptake were all normal. Skeletal and skull x-rays were normal except for lack of fusion of the distal radial

epiphyses and absence of the ileum epiphysis bilaterally. A vaginal smear showed no cornified epithelium. A buccal smear revealed the absence of female chromatin. Urinary FSH was greater than 100 mouse units.

These findings supported the diagnosis of gonadal dysgenesis so she was started on 1.25 mgm. of conjugated equine estrogens (Premarin®, Ayerst) daily with the result that normal breast development ensued. Sexual hair became more apparent and there was a slight increase in the hip fat.

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Brachial Arteriography

Its Value in Cerebrovascular Insufficiency

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Introduction

THE INCREASING LONGEVITY of our population has resulted in a rising incidence of diseases associated with aging. The syndromes of cerebrovascular insufficiency are more common and more frequently recognized clinically. These have been roughly divided into two groups. The first one consists of intermittent episodes of homolateral diminution of vision with contralateral hemiparesis or hemisensory defect. This is the result of insufficiency of the carotid artery with involvement of its first intracranial branch, the ophthalmic artery. The second group of signs and symptoms resulting from insufficiency of the vertebral basilar system, is a much more complex and varied one. The structures within the territory of the vertebral and basilar arteries contain a very large number of nuclei and tracts and the combinations of signs and symptoms may be almost endless. There is, however, a group of symptoms which seem to reappear more frequently, leading to what might well be called the "core" of the syndrome: Such manifestations as diplopia, vertigo, nausea, alteration of consciousness (this may vary from slight lethargy or mild confusion all the way to deep stupor and coma), dysarthria, dysphagia, staggering gait and alternating involvement of motor function or sensation of any of the extremities and the face. The presence of diplopia, vertigo, dysarthria and alteration of consciousness probably represents the most reliable diagnostic constellation of symptoms. Therapy for this often crippling condition has been restricted to various medical measures, including the use of long-term ambulatory anti-coagulant therapy. However, the efficacy of these measures remains controversial.

Within the past ten years, interest has been increasingly focused on the extracranial vessels as a possible site of pathology in cases of cerebrovascular thrombosis and insufficiency. It has become more and more evident that an anatomic diagnosis of the true provocative lesion based purely on clinical data is not accurate.

The recognition that the immediate provocative

The authors present a study of 47 cases of cerebrovascular insufficiency which were subjected to panarteriography. The delineation of specific lesions in the four major arteries to the brain and subsequent surgical correction of many of them makes this a valuable tool in an increasingly important field.

lesions in cases of cerebrovascular insufficiency can be removed or corrected surgically has dramatically emphasized the need for complete visualization of both vertebral and carotid arteries throughout their entire extracranial and intracranial courses.

By far the most common underlying condition is atherosclerosis. This occurs in most elderly individuals but would appear to be accelerated by the presence of hypertensive cardiovascular disease and diabetes. Precipitating causes for the actual episode of cerebrovascular insufficiency includes the following: syncope, severe hemorrhage, myocardial infarction, Stokes-Adams syndrome, post-traumatic circulatory disorder, tussive syncope, carotid sinus sensitivity, as well as many causes for postural hypotension such as idiopathic, post-operative, post-sympathectomy, Addison's disease, diabetes, tabes dorsalis, etc. Special emphasis should be placed upon the iatrogenic cause since it is becoming more and more common with the rather promiscuous utilization of hypotensive agents among which the tranquilizers of the phenothiazine and rauwolfia types are the most frequent culprits.

Panarteriography enables visualization of the blood supply to the brain without undue risk to the patient and it is the purpose of this paper to report the data we have accumulated through the use of this technic.

Material and Methods

From the beginning of October, 1960, through June, 1961, a total of 47 patients were subjected to panarteriography by means of percutaneous brachial arteriography and left carotid angiography. All 47 patients presented historical and neurologic evidence

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of cerebrovascular insufficiency. This series was composed of 36 men and 11 women ranging in age from 39 to 73 years, with a mean age of 56.3 years.

No attempt was made to clinically differentiate between involvement of the carotid arterial system and involvement of the vertebral-basilar arterial system.

The only contraindications to the procedure were severe clinically active myocardial disease, abnormalities of the blood clotting mechanism or clinical evidence of intracerebral bleeding.

We employed the method described by Sheehan and co-workers using the Seldinger needle for percutaneously introducing a polyethylene catheter over a flexible wire guide into the brachial artery in the antecubital fossa. The principal modification of the procedure has been the fact that the location of the tip of the catheter is ascertained by fluoroscopy. A more detailed description of the technical and radiologic procedures as they are performed at this medical center has been published by Agnew and his collaborators.

In recent months we have been successful in obtaining adequate opacification and visualization of both carotids and both vertebrals by a single injection through the catheter which has been advanced in the ascending aorta. Panarteriography can thus be obtained by puncturing just the right brachial artery.

After withdrawing the catheter, an elastic bandage was immediately applied over the site of the arterial puncture and tightened sufficiently to occlude arterial flow for approximately ten minutes. The bandage was then loosened and left in place for an additional four hours. We did not observe any significant hematoma, and a radial pulse was usually palpable immediately after loosening the dressing. In only one patient did we have to wait as long as one hour for a return of the radial pulse.

The procedure was conducted under local anesthesia, and with one possible exception, none of the patients suffered any after-effects from the arterial puncture or compression. Pain at the site of injection persisted for approximately 24 to 48 hours.

Complications

Convulsions. Two patients had grand mal convulsions during the arteriographic procedure. However, both had had convulsions previously. No neurologic deficit was detected subsequently.

Worsening of pre-existing hemiplegia. One patient had progressive worsening of a left hemiparesis during the four days immediately after the procedure. At post mortem examination, a thalamic glioblastoma was demonstrated.

Transient visual disturbances. Two patients had a

transient homonymous hemianopsia. Both patients recovered completely within two hours.

Broken guide wire. In one patient, 3 cm. of the flexible tip of the guide wire broke off. At the end of the procedure, it was found lodged in the radial artery in the mid forearm. X-ray examination 48 hours later revealed the wire lodged in one of the arteries of the hand. The patient was completely asymptomatic and refused surgical attempt to remove it.

Results

Surgery, which was performed in 11 patients, confirmed 24 radiologically demonstrated lesions. Unless otherwise specified, the arteriosclerotic plaques were located in the region of the bifurcation of the common carotid artery or at the origin of the vertebral arteries, either from the innominate artery on the right or from the aorta on the left (*Figures 1, 2, 3*).



Figure 1A. Right side, with the head turned to the right; there is a definite constriction with post-stenotic dilatation of both internal and external carotid arteries.

Abnormalities not involving the carotid and vertebral arteries directly were also noted. These include tortuous basilar artery, kinks of the axillary artery, an aneurysm of the subclavian artery and narrowing of the subclavian artery.

Table I records the value of brachial arteriography in the visualization of the carotid and vertebral arteries. Of the 149 visualized vessels, 84 (56.5 per cent) were normal and 65 (43.5 per cent) had some abnormality.

Table II summarizes the extent of extracranial arterial involvement. All four arteries were visualized in 17 patients but in only one were all four vessels free of disease. Three of the four major vessels were visualized in 21 patients, and no disease was found in six. In nine patients, only two vessels were adequately visualized; in two patients, these vessels had no lesions. All four vessels were involved in two patients (4 per cent), three vessels were involved in three pa-



Figure 1B. Turning the head to the left reveals the presence of a large plaque at the carotid bifurcation.



Figure 2. Left side: severe constriction at the origin of the vertebral artery by an atheromatous deposit.

TABLE I
DEMONSTRATION OF LESIONS BY
BRACHIAL ARTERIOGRAPHY

Artery	Total Visualized	Normal		Abnormal*	
		NO.	PER CENT	NO.	PER CENT
Right vertebral	46	23	50	23	50
Right carotid	42	27	64	15	36
Left vertebral	43	24	56	19	44
Left carotid	18	10	56	8	44
Total	149	84	56.5	65	43.5

* Includes totally obstructed vessels.



Figure 3A. Right side, with the head turned to the left: both carotid and vertebral arteries appear normal.



Figure 3B. With the head turned to the right, severe lesions at the carotid bifurcation, the origin and the proximal portion of the vertebral artery are demonstrated. This illustrates the importance of obtaining visualization in all three head positions.

tients (6 per cent), two were involved in 15 (32 per cent) and one was involved in 18 (38 per cent). In only nine patients (19 per cent) were all visualized vessels free of lesions.

Table II also illustrates the fallacy of attempting to decide by clinical means alone whether the carotid arterial system or the vertebral-basilar system is primarily involved. In most patients more than one of the four main vessels were involved.

Table III tabulates data concerning the type of arterial lesions demonstrated in each of the four vessels. Intra-arterial arteriosclerotic plaque was by far the single-most common lesion, most frequently located in the right carotid artery in the region of the bifurcation. Total occlusions were found in seven patients. Tortuosity of a significant degree was recorded in only one patient and involved the left vertebral artery. In another patient, the left vertebral artery was completely absent, and this absence was confirmed by surgical exploration. The right vertebral artery in three patients and the left vertebral artery in one patient were of such small caliber as to

TABLE II
EXTENT OF EXTRACRANIAL ARTERIAL INVOLVEMENT AS DEMONSTRATED BY BRACHIAL ARTERIOGRAPHY

Number of Arteries Visualized	Arteries Involved by Pathologic Process					Total Patients	
	4	3	2	1	0	NUMBER	PER CENT
4	2	1	6	7	1	17	36
3	-	2	6	7	6	21	45
2	-	-	3	4	2	9	19
Totals	2	3	15	18	9	47	
Percentage of total number of patients	4	6	32	38	19	100	100

TABLE III
TYPE OF ARTERIAL LESION
DEMONSTRATED BY
BRACHIAL ARTERIOGRAPHY

Lesion	Symbol	Artery				Total
		RV	RC	LV	LC	
Plaque	P	6	15	10	5	36
Occlusion	O	2	-	2	3	7
Tortuosity	T	-	-	1	-	1
Absence	A	-	-	1	-	1
Spur	S	7	-	4	-	11
Band	B	6	-	1	-	7
Small	L	3	-	1	-	4
		24	15	20	8	67

be of questionable efficacy in contributing to the blood supply of the brain.

Concerning extra-arterial lesions, compression of the vertebral arteries by osteoarthritic spurs was found in 11 patients (*Figure 4*). Kinks, as reported by Meyer and his co-workers were not found in our series. However, in seven patients we demonstrated an extra-arterial ligamentous band (*Figures 5 and 6*). Upon rotating the head, usually to the side of the involved artery, this band occluded the vertebral artery approximately one or two inches from its origin. This band was confirmed by surgical exploration in four of the seven patients in whom the diagnosis was made from radiologic appearance. Unfortunately, it was impossible to determine the origin and insertion of these bands. To our knowledge, this type of lesion has not been previously described.

Symptoms noted by these seven patients were those commonly associated with intermittent vertebral artery insufficiency as described by Sheehan and collaborators and by Bauer and his co-workers. None of the patients were aware of any relationship between their symptoms and head turning.

In one of these patients the operative note, written by Dr. Creighton Hardin, includes the following: "A sternotomy was performed with a superior oblique incision going to the base of the neck on each side. The sternocleidomastoid muscle was severed. The fascia over the anterior mediastinum was incised and the right innominate artery was dissected out. A prominent and taut anterior scalene muscle was incised and severed. The right vertebral artery came off the subclavian in its normal position, but was compromised by an encircling band of heavy scarred fascia which was incised. An indentation of the arterial wall was present, even after the artery was completely mobilized. There were no plaques in the subclavian or right vertebral arteries."

In each case, section of the fascial band revealed

the arteries to be indented and gradually returned to the caliber of the vessel proximal to the compressed area.

A recent report by Powers, Drislane and Nevins has indicated that an anomalous origin of the vertebral artery may cause the signs and symptoms of cerebrovascular insufficiency by altering the normal relationship between the artery and the surrounding structures when the head is turned. In our patients, while the origin of the vertebral artery was normal, the presence of an abnormal ligamentous band and a taut anterior scalene muscle suggests the possibility that we are dealing with one of the many varieties of congenital anomalies which occur in that area. It thus would fall into the group of scalenus anticus or thoracic outlet syndromes.

Discussion

It is beyond the scope of this report to review the syndromes of cerebrovascular insufficiency, their diagnosis or treatment. These have been described many times since the now classic papers of Millikan and Siekert.^{6, 7} Our concern is with a particular radio-

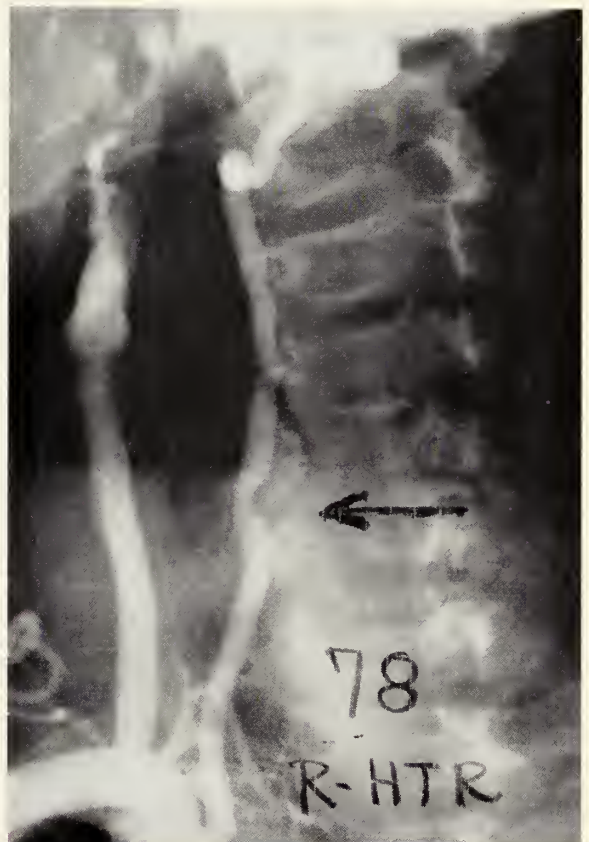


Figure 4. Right side, head turned to the right: there is a 40 per cent narrowing of the vertebral artery due to compression by an osteoarthritic spur.

logic technic for demonstrating lesions that may provoke episodes of neurologic deficit. Since no similar studies exist on patients of a comparable age who do *not* exhibit signs and symptoms of cerebrovascular insufficiency, we are assuming that the demonstrated lesions are responsible for these episodes. However, we are arranging for such a control study.

The work of DeBakey and his collaborators has focused attention upon possible surgical intervention to remove lesions. This has made visualization of the vertebral and carotid arteries mandatory, and for the last few years a search for the best methods has been conducted in many medical centers.

Direct puncture of the vertebral artery has always been a rather difficult and painful procedure, and direct puncture of the subclavian artery entails too often the risk of pneumothorax or injury to the brachial plexus. The introduction of a needle and catheter in the brachial artery in the antecubital fossa by cut-down requires the use of an operating room and portable x-ray apparatus. As a result, we decided upon the percutaneous transbrachial method of arteriography.



Figure 5A. Left side, with head turned to the right: the vertebral artery fills satisfactorily although its origin is definitely narrowed.

This relatively simple procedure has the following advantages over other methods of radiologic visualization of the arteries in the neck:

1. It avoids direct needle puncture of the arteries under investigation such as the carotid or the vertebral, with attendant risk of spasm, subintimal hematoma or complete thrombosis.
2. It enables satisfactory examination of the origin and proximal portions of the vertebral and right carotid arteries—the most common sites of vascular lesions.
3. As compared to inserting a catheter or cannula by the cutdown method, it is a simple neurologic procedure accompanied by fewer complications at the site of insertion.

In our own experience, we followed the usual progression of first visualizing the artery that seemed to be involved on the basis of clinical history and findings. However, experience with complete throm-



Figure 5B. With the head turned to the left, the vertebral artery is completely occluded by an external ligamentous band approximately 4 cm. distal to the origin.



Figure 6A. Right side, with head turned to the right: the carotid artery reveals a mild degree of post-stenotic dilatation. The vertebral artery is completely obstructed approximately 2 cm. from its origin. This is the typical appearance of an external ligamentous band, producing total obstruction of the vertebral artery.

basis of the carotid artery taught us that these were poor guides. Complete thrombosis may occur without producing clinical symptoms. Only when the opposite carotid artery becomes narrowed or partially obstructed does symptomatology occur and direct attention to the thrombosed artery. The accompanying diagram provides a possible explanation for this phenomenon (Figure 7).

When the blood supply to the brain is considered from an anatomical viewpoint, there is little justification for separately examining each arterial channel. The principle that each internal carotid artery is responsible only for its own anatomical segment of the brain, and similarly each vertebral artery for its own segment of the hind brain, applies only in normal circumstances, for it is known that the brain may function well in spite of occlusion of one of these vessels.⁹

For normal function, the brain requires 20 per

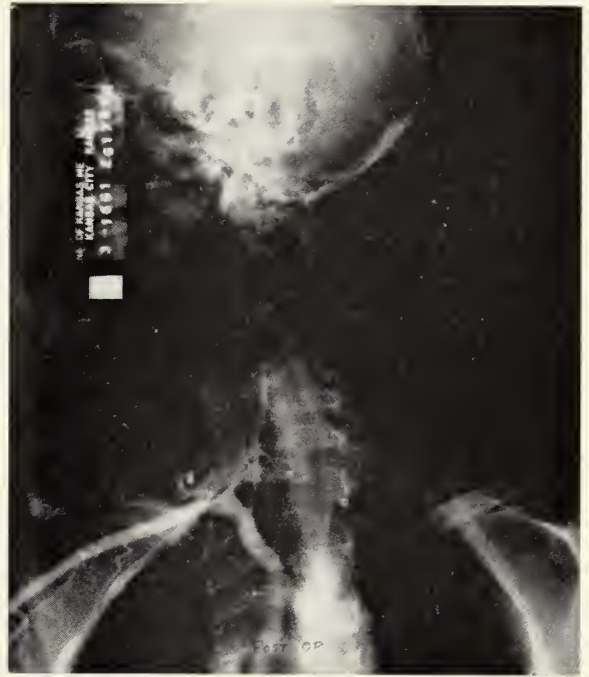


Figure 6B. A post-operative film of the right brachial angiogram, with the head turned to the right, now shows complete patency of the vertebral artery.

cent of the oxygen available for the entire body; slightly more than 15 per cent of the total cardiac output is required to convey this supply. It would seem, therefore, that occlusion or narrowing of one or more of the four major arteries may very well greatly impair cerebral activity. If Poiseuille's law applies to vessels of this caliber, it would suggest that narrowing of the lumen by half reduces the flow to one-sixteenth of its previous level. Therefore, the often advanced argument that it is pointless to visualize carotid and vertebral arteries in patients with evidence of widespread arteriosclerotic disease seems untenable to us. A few, occasionally even a single, strategically located occlusive lesion may produce episodes of cerebrovascular insufficiency.

The procedure of brachial arteriography and its application to the study of cerebral circulatory pathophysiology has emphasized the fact that the circle of Willis functions in a most unpredictable fashion as an anastomotic circuit. In addition to the frequently encountered congenital anomalies affecting its competency, we now realize that our knowledge of the hemodynamics of this theoretical anastomotic circle is only sketchy. It has long been known that lesions in the carotid and vertebral arteries in the neck may be manifested by signs and symptoms suggesting intracranial lesions, but not until recently were such lesions demonstrated during life.

Yates and Hutchinson reviewed a series of 100 pa-

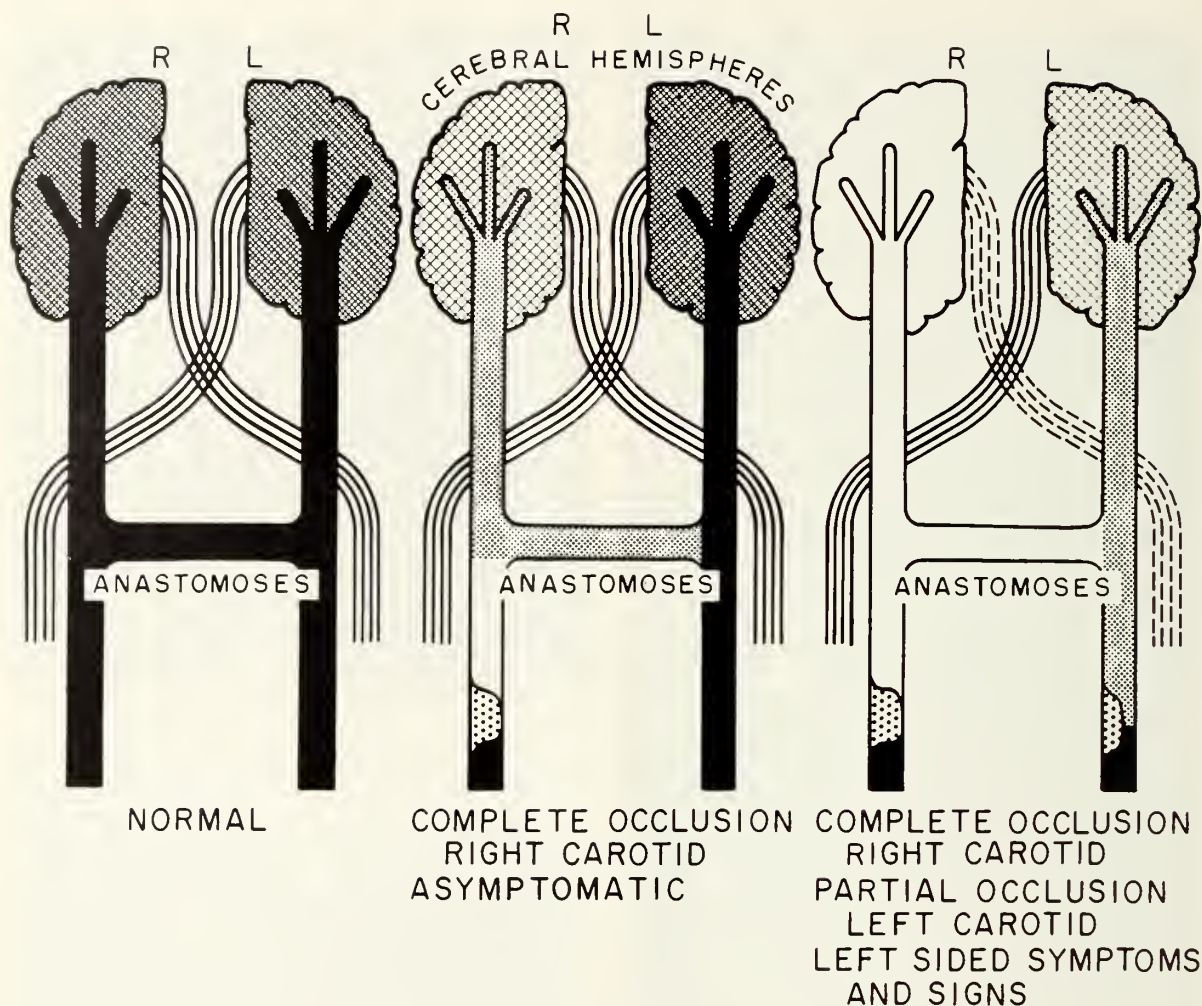


Figure 7. With complete occlusion of the right carotid artery, providing the anastomotic channels are adequate, the right cerebral hemisphere receives a subnormal, or marginal, but still sufficient blood supply. There are no neurologic deficits. If subsequently, the left carotid artery becomes narrowed, the reduced blood flow is no longer able to supply both hemispheres and the marginal blood supply to the right hemisphere via the anastomotic channels becomes inadequate. As a result, left-sided neurologic signs of right hemisphere deficit become clinically apparent. The left hemisphere continues to receive a reduced but still sufficient blood supply and remains functionally intact.

tients in whom the vessels were examined at autopsy. The age range was from 34 to 85 years. In only 14 was there no appreciable atheroma in the cervical vessels. A grade one of stenosis (minimal atheromatous change) was found in the right carotid artery of 44 patients, in the left carotid of 36, in the right vertebral of 30 and in the left vertebral of 32. Grade two stenosis (narrowing by about one-half) was found in the right carotid of 28 patients, in the left carotid of 28, in the right vertebral of 20 and in the left vertebral of 21. Grade three stenosis (complete or almost complete occlusion) was found in the right carotid of eight patients, the left carotid of 13, the right vertebral of ten and the left vertebral of six. Significant stenosis (grades two and three) was

more common in the carotid arteries (77 vessels) than in the vertebral arteries (57 vessels).

These authors state that the "commonest pattern of disease in the extracranial arteries was for significant stenosis to be present in both the carotid and the vertebral arteries." This accounted for 34 cases in the series. Another of their observations is of interest: "The present series of cases illustrates the importance of the extracranial cerebral arteries in the pathogenesis of intracranial infarctions. In the 35 patients dying of cerebral infarction, 74 separate areas of infarctions were demonstrated at post mortem; but only in the case of 15 of these infarcts were the relevant intracranial arteries occluded, and only in a further seven were they significantly narrowed.

By contrast, occlusion by thrombosis or serious narrowing by atheroma was present in one or more of the extracranial arteries in 22 of the 35 cases; and indeed only three of the remainder showed no significant stenosis of vertebral arteries. Moreover, in six of the cases where there was occlusion of the intracranial artery, this had occurred by extension of thrombus from the diseased carotid artery."⁹

It has been repeatedly shown that, among many factors, an important consideration in long-term medical management of patients with cerebrovascular insufficiency is the maintenance of an adequate level of blood pressure. Symptoms of cerebral ischemia may appear only when the blood pressure is lowered; thus it seems that partial occlusion plays a major factor in the pathogenesis of insufficiency with reduced blood pressure. Therefore, surgical intervention appears to be, at least in some instances, a more satisfactory solution than anticoagulation therapy.

Unfortunately, all lesions demonstrated by brachial arteriography are not amenable to surgical treatment.

Hardin and his collaborators are preparing follow-up studies on patients in this series who had lesions surgically removed. Although it is unrealistic to hope that all patients with cerebrovascular insufficiency have surgically remediable lesions, our data suggest that such lesions may exist in many of these patients.

Although no specific criteria have yet been established for selecting patients for brachial arteriography, we have attempted to perform it primarily in patients with historical evidence of cerebrovascular insufficiency rather than neurologic evidence of thrombosis and infarction.

Summary

Forty-seven patients suffering from intermittent cerebrovascular insufficiency were subjected to total neck vessel arteriography by means of percutaneous brachial arteriography. Of 149 vessels visualized by this method (both carotids and both vertebrals), 84 (56.5 per cent) were normal while some type of obstructive lesion was found in 65 (43.5 per cent). In only nine patients (19 per cent) were all visualized vessels normal.

The demonstrated lesions consisted of 36 intra-arterial arteriosclerotic plaques, seven complete occlusions, four abnormally narrow vessels, one congenitally absent vessel, eleven osteoarthritic spurs and seven external ligamentous bands. These bands, which compressed the proximal portion of the vertebral arteries, have not been reported on before. They are particularly amenable to surgical removal.

The fact that more than one of the four major vessels was involved in most patients emphasizes the

fallacy of attempting to make a diagnosis in terms of specific vessels on the basis of clinical considerations.

Since surgical removal of strategically located obstructive lesions in the neck vessels appears to offer the most practical and satisfactory therapeutic attack in many of these patients, adequate visualization of the entire course of both carotid and vertebral arteries is imperative. Percutaneous brachial arteriography is a means of obtaining this visualization. It is a relatively simple neurologic procedure which has the main advantage of not subjecting potentially diseased vessels to direct puncture. Complications and morbidity are negligible and major contraindications are few.

Acknowledgements

The authors wish to thank Doctors Colvin Agnew, Amin Faris, Creighton Hardin, Karl Youngstrom and Angelo Zosa for their kind cooperation.

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Unless you can find some sort of loyalty, you cannot find unity and peace in your active living.

—*Josiah Royce*

One man with courage makes a majority.

—*Andrew Jackson*

Cirrhosis

Primary Biliary Cirrhosis: A Case Report*

JOHN E. SWEENEY, M.D., Topeka

A case of primary biliary cirrhosis is reported. Patency of the extrahepatic biliary tree was demonstrated by oral cholecystography. The diagnosis was substantiated by liver biopsy. The patient maintained a good state of health despite extensive liver involvement until the last six months of her life, finally succumbing to hemorrhage from esophageal varices.

WOMEN WITH CHRONIC liver disease are apt to be a problem clinically. Among men, these cases usually are not puzzling, falling into the category of Laennec's cirrhosis or chronic infectious hepatitis. Much more frequently females are seen with chronic or progressive liver disease which does not fall into any such clear-cut diagnostic pattern. Many attempts have been made to classify these cases,^{1, 2} sometimes pathologically on the basis of microscopic morphology and location of lesions; sometimes clinically on the basis of laboratory findings, age, course, etc.; sometimes etiologically on the basis of supposed causative or inciting agents. When these various classifications are combined, they can lead to a tremendously confusing array of theoretical "entities." Among these, however, a few definite and identifiable types are found in practice which, though not fully understood, are separately recognizable. Primary biliary cirrhosis identifies one such group, an interesting example of which has recently been studied.

A 52-year-old, married, white, farm wife was first seen at the Topeka Medical Center in 1956, because of epigastric pain, darkening of the skin, fever and weakness. She had had symptoms for a month and had been treated by her personal physician for a urinary infection with partial relief. She was found to have icterus, plus a darkened skin, and an enlarged liver. Fever and pyuria were also noted and she was treated in the Stormont-Vail Hospital for this with improvement. Although the relatively few tests of liver function done (Table I) were sugges-

tive of obstructive jaundice, she was considered to have subsiding infectious hepatitis. Gall bladder x-rays at this time revealed an apparently normal gall bladder with good concentration of the opaque medium. Following the fatty meal (and an intravenous pyelogram) there was good contraction and the cystic and common ducts were well outlined (*Figure 1*). Because of her skin pigmentation, Addison's disease was suspected and a Thorne test done which was normal. Six weeks after her first visit, she was re-examined and the brown color of her skin was again remarked upon though the icterus index was only 14 units.

The patient was not seen again for five years. During this time, she got along quite well, maintaining a steady weight and going about her normal (and rather strenuous) activities without difficulty. In the same period, she went through an uneventful menopause. She did, however, have steady progression of the pigmentation of her skin and was bothered by a great deal of itching. In the spring of 1961 she began to have abdominal enlargement and ankle edema and complained of upper abdominal pain and

TABLE I
PERTINENT LABORATORY DATA

Test	1956	1961
Bilirubin (mgm.%)		
Total	—	5.0
Direct	—	3.0
Cholesterol (mgm.%)		
Total	"Serum Chylous"	112
Esters	—	57
Serum Protein (Gm.%)		
Total	—	8.6
Globulin	—	5.6
Alk. Phosph. (Bod.)	18.2	6.5
Thymol Turbidity	1.0	7.5
BSP Retention	40%	44%
Anemia and Leukopenia (HGB = 10.0 GM, WBC = 4,100)		
Erythrocyte Sedimentation Rate = 114 mm./h.		
Mildly Diabetic Glucose Tolerance Curve		

* From the Topeka Medical Center and Stormont-Vail Hospital.



Figure 1. Cholecystogram following fatty meal. Cystic and common duct outlined. 1956.

malaise. Her personal physician administered a thiazide diuretic with relief of swelling and improvement of her symptoms. She was referred back to the Topeka Medical Center for further study.

Physical examination, at that time, revealed a 58-year-old, white woman, who was 5'4" tall and weighed 136 pounds. There was no evident ascites or edema at the time she was first seen and the patient did not appear to be particularly ill. Abdominal examination revealed marked enlargement of the liver which was down at least three fingerbreadths from the right costal margin and partially filled the epigastrium. The spleen was also enlarged and readily palpable. The most striking observation was the dark brown, dusky pigmentation of the entire skin. This was quite uniform and did not appear to be unduly increased over areas of pressure or exposure. The skin had a thickened, scaly, almost ichthyotic character and this was quite diffuse though perhaps more significant in regions readily accessible for scratching, where many excoriations were seen. A section of the skin (Figure 2) showed a rather prominent horny layer as well as thickening beneath the

dermis with many empty spaces suggestive of dissolution of lipid in the fixation process. The genital hair was quite sparse but the patient maintained that this was a natural trait. Xanthelasma were never noted.

A number of laboratory studies were done with the principal findings listed in Table I. The high serum globulins are reflected in the sedimentation rate. The fact that at this time the alkaline phosphatase had fallen almost to normal and the cholesterol was quite low suggests that the patient was in a late stage of her disease. The appearance of ascites and esophageal varices (which were seen on x-ray examination) also pointed to advanced disease. The elevated glucose tolerance curve probably reflected extensive liver disease since there was no clinical evidence of diabetes. Interestingly enough, oral cholecystography at this time again demonstrated a normal gall bladder, though the concentration was poor. Studies for increased tissue and serum iron were negative.

A needle biopsy of the liver was done (Figure 3) and Dr. Samuel Zellman (Topeka Veterans Adminis-

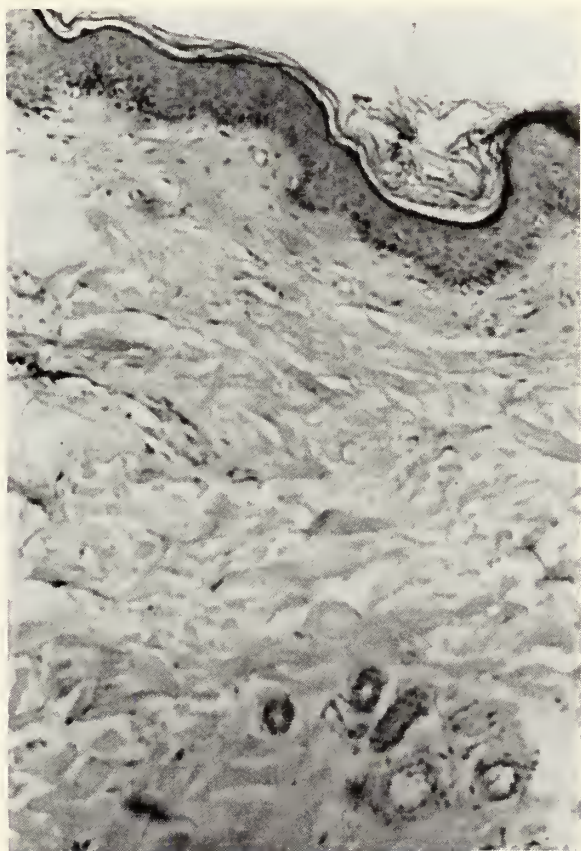


Figure 2. Biopsy of Skin (120X). 1961. Stains for iron were negative.

tration Hospital) was kind enough to review the material with these comments: "The liver tissue shows disruption of the normal lobular pattern by fibrous septa. These consist largely of relatively loose collagen infiltrated with fibroblasts and mononuclear cells predominantly. . . . Ductular cell proliferation is evident, but bile ducts are not markedly prominent and contain no bile. The parenchymal liver cells are fairly well preserved except in areas adjacent to the fibrous septa, where diffuse and focal necrosis is accompanied by infiltration and dissection by invading collagen and inflammation. In areas . . . distant from the . . . septa and presumably representing originally centrallobular areas, . . . cholestasis is evident, with inspissated bile casts in canaliculi, globules of bile pigment in liver cell cytoplasm, and gross bile imbibition by Kupffer's cells. . . . Regeneration of liver cells is not prominent and although some double cell thick liver plates are seen, for the most part liver plates are of unicellular thickness. An occasional central vein remains recognizable."

In the hospital and afterwards the patient was given thiazide diuretics as needed for control of edema, and this was accomplished without too much

difficulty. Sundry symptomatic remedies were used to relieve her abdominal distress, for which no cause, other than ascites, could be found. Experimentally, she was tried on bile salts and Zanchol, but could not tolerate them. For several weeks, she was carried on a corticosteroid. This produced improvement in her abdominal distress and a feeling of general well being, but, as might be expected, favored more edema. Interestingly, this gave no relief of itching. She was given chloroquine 250 mgs. daily for a short period, but complained that it caused nausea. Neither this drug nor the corticosteroid produced any noticeable change in the liver function studies or level of bilirubin.

In January, 1962, the patient contracted pneumonia and was hospitalized elsewhere. Her infection was controlled, but she was found to be more anemic than previously. During her convalescence, she suddenly developed massive gastrointestinal hemorrhage, apparently from the esophageal varices, and died. No autopsy was done.

This case represents the classical basic picture of primary biliary cirrhosis,³ though all the details were not demonstrated. Other terms which have been

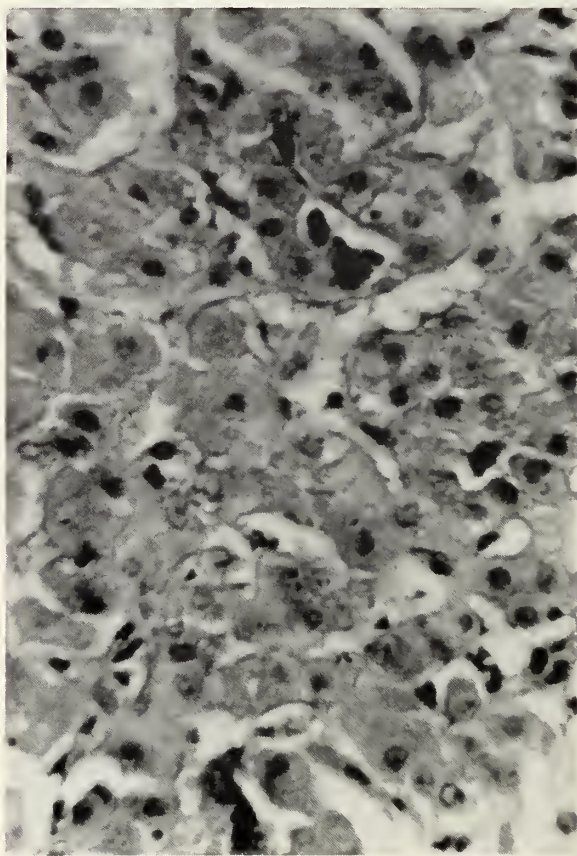
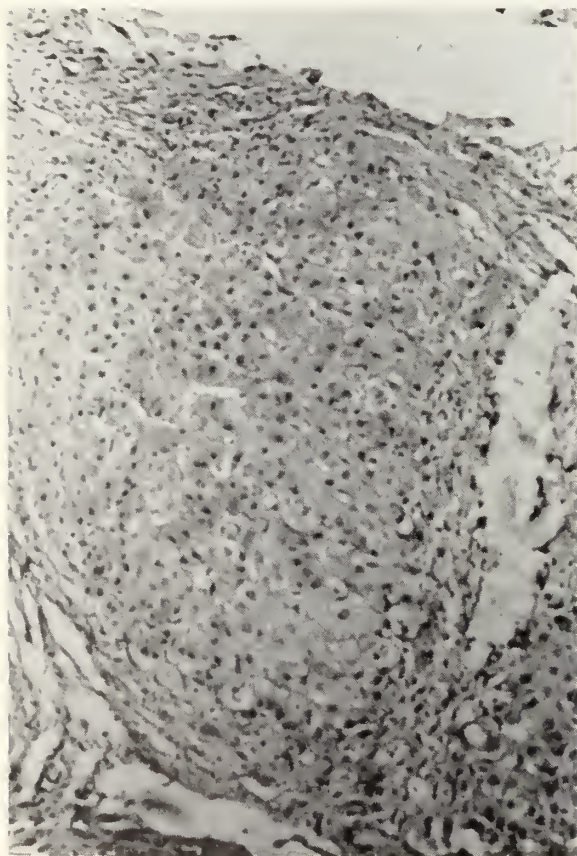


Figure 3. Liver biopsy (A, 120 \times and B, 400 \times). See text.

used in reference to some or all of the cases of this type are "xanthomatous biliary cirrhosis," "pericholangiolitic biliary cirrhosis,"⁴ and "chronic intrahepatic obstructive jaundice."⁵ The latter is the most appropriate clinically. The primary finding is chronic jaundice with clinical and laboratory features of obstruction but without any disease or obstruction of the external biliary structures. There is relatively good preservation of other liver functions and characteristically marked elevation of the serum cholesterol and lipids in the earlier stages.

Typically, this disease is seen in middle-aged women who seem quite well but have enlarged liver and (usually) spleen, and a diffuse melanotic pigmentation of the skin with itching and thickening. This is supposedly due to chronic lack of vitamin A and chronic jaundice itself. Despite their good appearance, these patients show a relentless downward course ending in either hepatic coma or hemorrhagic death. The pathological findings are such as were seen in this case. There is diffuse fibrosis and inflammatory change in the portal spaces, obliterating the bile ducts and surrounding the individual lobules. The liver cells and lobular architecture are relatively intact and bile stasis is seen only within the lobule. Other common, but not necessary, features are xanthelasma or xanthomatosis, depending on the level of serum lipids reached and the duration of high levels; steatorrhea, associated with defective absorption of fatty acids (free fat is not commonly found in the stools); and osteoporosis, apparently due to malabsorption of vitamin B and calcium. It should be emphasized that the same clinical picture (but not microscopic findings) can be seen with prolonged extrahepatic biliary obstruction.

The etiology of this condition is quite unknown. If it is elucidated, we can drop the term "primary." A similar picture has been reported with prolonged chlorpromazine jaundice, but is said to heal spontaneously in time.⁵ An auto-immune process has been postulated,^{2, 6} but no convincing evidence for this has

been presented. Some authors are prepared to attribute this disorder to infectious hepatitis but few cases give indication of initial acute hepatitis and this is not the course of recognized chronic hepatitis.

Likewise, there is no specific therapy known. Recommended measures include nutritional support,⁷ which generally is not a problem unless the physician imposes arbitrary restrictions because the patient has "liver disease." An adequate supply of the fat soluble vitamins is desirable, either parenterally or in aqueous form, though this is not always successful. Most efforts to relieve itching are futile. One effective means is the administration of methyltestosterone or norethandrolone, both of which, however, regularly increase the degree of icterus. Recently, an ion exchange resin for the absorption of bile acids has been reported as helpful.⁸

Thus, we find a group of middle-aged women with jaundice (fortunately small in number) who remain a problem to the clinician. Though their disease has a name and a definition, it has no cause, it has no cure.

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Bizarre Symptoms

JAMES B. FISHER, M.D., *Wichita*

RECENTLY THE WRITER was called by the wife of a patient who had a coronary occlusion of modest proportions nine years before. She said that he was having very severe chest pain and felt that he should be seen. Upon examination, he did have severe chest pain requiring a hypodermic for relief. He was taken to the hospital where, because of the duration of his pain and its location in the substernal area, presumptive diagnosis of coronary occlusion was made. The patient was treated accordingly. Subsequent examination in the next few days, however, revealed that his electrocardiogram had not changed. His pain went away and did not recur; he had no fever; and he had no change in the sedimentation rate or the transaminase level. On x-ray a rather definite hiatal hernia was seen. Additional history revealed that the patient had had a rather serious back pain over a period of years which interfered seriously with his golf and other activities. This was relieved completely by a girdle-type back brace. He had also noticed that he had gained about ten pounds over the past two months. On the evening in question he had indulged in a very hearty meal preceded by several highballs. He has had no pain since the episode in question, and it is quite doubtful that he had a coronary occlusion or that his pain was due to coronary disease. His electrocardiogram is quite similar to one made last fall. However, he does have a reasonable explanation for the pain and has gone on about his business and recreation as usual with a weight loss of ten pounds and in complete comfort.

Consider the case of another patient sent from out of town to a surgeon for the repair of a hiatal hernia. Gastrointestinal x-rays had been done in search for the cause of chest pain in a man who had had a major attack of chest pain and on whom no electrocardiographic abnormality could be demonstrated. A lemon-sized hiatal hernia was found and it was concluded that this was the cause of his pain. The surgeon to whom the patient was referred, being of a cautious nature, re-examined the patient and a hiatal hernia could not be demonstrated at this time. (The patient had lost ten pounds since the diagnosis.) The electrocardiogram and the physical findings were normal. Because of a lack of demonstration of a cause of the pain and a lack of any demonstrable hernia to repair, the patient was referred to an internist for further examination. The history and physical examination were repeated and because of a rather definite

The Importance of Hiatal Hernia

Patients are often found, either unexpectedly or because of investigation, to have hiatal hernias. There is considerable difference of opinion as to the importance of this finding. Some authorities believe that it is an incidental finding probably of no importance, an x-ray curiosity, others that it is a surgical lesion and should be repaired forthwith. Probably the true situation lies somewhere between these two extremes.

history of production of pain on exercise and relief of the pain on rest, the lack of connection of pain with meals, and the lack of connection of symptoms with position, or other information tending to make one think of a gastrointestinal disease, the patient was subjected to a Master's test which showed pathological change. The importance of this rather definite finding was discussed with the patient and the surgeon. They both readily agreed to a trial on medical management for cardiac disease and a continuation of the effort to keep the patient's weight down in order not to reproduce the hiatal hernia which was present on the first x-rays. The patient was seen two years later because of other conditions, and at that time still had a normal electrocardiogram and still had pain with the same amount of walking (one-half block) and relief of the pain on rest, and had avoided major surgery.

Hiatal hernia, its incidence, symptomatology, causation and treatment has been the subject of a good many medical dissertations and is not a new disease; yet there is considerable divergence of opinion as to its importance. Many physicians have felt that it is a commonly seen finding in the course of x-ray examination of the upper gastrointestinal tract and not responsible for pain or disease ordinarily. By others it is regarded in the same light as any other hernia—a disease amenable to surgical correction and frequently of considerable clinical importance. Lack of uniformity of opinion concerning the incidence of hiatal hernia aroused my interest in making a brief investigation of the uniformity of incidence as an x-ray finding. The findings of this investigation were carried out in three laboratories. Each laboratory was requested to examine the most recent one hundred

consecutive upper gastrointestinal x-rays and to report the incidence of hiatal hernia. In laboratory A, three hiatal hernias were seen. In laboratory B, five hiatal hernias were seen, and in laboratory C, 23 hiatal hernias were seen. Dr. Schotzki is quoted as saying that in 70 per cent of the patients on whom he does gastrointestinal x-rays, a hiatal hernia of some size or degree may be demonstrated by appropriate maneuvers on fluoroscopy. In my opinion, the variation in incidence of hiatal hernia is a matter of pathological physiology, anatomical variants, x-ray technique, enthusiasm of the investigator and the differences in the definition of hiatal hernia on x-ray.

The present series of cases was collected by inspection of records of general patients seen in a general medical office in whom an x-ray diagnosis of hiatal hernia was made. It was found that it was possible to locate 421 cases on whom this diagnosis had been made throughout a period of 40 years. Of these, 232 were suspected of having a hiatal hernia on the basis of the history and physical examination. Four hundred and ten of the hiatal hernias were considered to be of importance in production of at least some of the patient's symptoms.

Complications of significance directly attributable to hiatal hernia were seen in 61, or 16.5 per cent, of the patients on whom the diagnosis was made. They are roughly classified as follows: Esophageal stricture with obstruction of some degree was seen in 18; major upper gastrointestinal hemorrhage was seen in 17; active esophagitis or esophageal ulceration was seen in 11; anemia of significant degree felt to be due probably to some phase of the hiatal hernia was seen in 15.

In 381 cases primary medical treatment was felt to be appropriate. This consisted usually of neutralization of gastric acidity, reduction of body weight if this was abnormal (or other efforts to decrease the intra-abdominal pressure if necessary), position, and esophageal dilatation if the patient had developed a stricture of the lower esophagus. Twenty-nine patients went to surgery for various reasons. Eight of these went to surgery because of failure of medical treatment. Two hundred and twenty-seven patients were treated medically and observed over a period of at least one year.

(a) Sixty-seven, or 29.5 per cent, of these were classed as an excellent result with no recurrence of symptoms. It is my distinct impression that a large number of these were patients who made a substantial reduction in their weight and maintained it.

(b) Eighty-eight patients, or 38.6 per cent, had a result considered good, with complete relief as long as the patient remained on treatment. With weight gain or omission of antacids, there was recurrence of symptoms.

(c) Thirty-one patients, or 13.2 per cent, had fair results. This is a group of patients who had symptoms but were controlled on treatment most of the time, with recurrence but without a significant disability.

(d) Six patients had prolonged morbidity and disability in spite of treatment.

(e) One patient was treated medically without a significant change of downward course and died of the disease.

It is probable that most of the patients falling into the latter two categories became surgical patients. Seventy-two patients were not followed, either because they were seen in consultation or for other reasons.

Of 29 who were subjected to surgery or came in primarily for surgery, six, or 20 per cent, were felt to have an excellent result without recurrence of symptoms. Three were *class b* and required further medical treatment much as before surgery; two had prolonged symptomatology in spite of some medical treatment after surgery and continued disability due to the disease. Four, or 13.8 per cent, of the 29 on whom operation was performed died as a result of the disease or the surgery. In six the results were not recorded because the patients were not followed. A comparison of these results with those on medical treatment is not valid as almost all operations were on patients with inadequate relief on medical treatment.

From the above findings it would seem to be a fair assumption that medical treatment, with dilatation if necessary, would deserve a trial before subjecting a patient to a surgical correction of the disease. Also, it would seem that further consideration of the general subject of the surgical attack would seem appropriate and that this subject cannot be considered closed as yet, as the anatomical correction of a hiatal hernia does not always seem to get at the real cause of the symptoms and mechanism of the disease. Of interest in this connection is a short series of cases reported by Dr. Wangenstein about ten years ago in which patients with symptomatic hiatal hernia were treated by a resection of the acid-bearing portion of the stomach without correction of the hernia, followed by disappearance of the x-ray evidence of the hernia and of the symptoms.

Of interest is the incidence of coincident factors of the patient's age, weight, and sex and the rather frequent occurrence of other diseases. Briefly these included, in the 421 patients under consideration, obesity in 75, major disease of the spine in 58, heart disease in 51, gallstones in 44, arterial hypertension in 33, other hernias in 32, cancer in some form in 24, diabetes in 12, and gastric or duodenal peptic ulcera-

tion in the upper gastrointestinal tract were seen in 38.

There is rather interesting work being done by means of a strain gauge and a pH indicator on the end of an esophageal tube. This is used to produce pain in patients with hiatal hernia by introduction of pressure and acidity in the lower esophagus.

In theory it would seem logical to presume, at least in a large group of patients, that the symptomatology will fall into three groups:

(1) Those symptoms which are produced mechanically by filling of a segment of the stomach above the diaphragm.

(2) Those patients in whom symptoms are produced by peptic activity from aberrant secretions either in the upper segment of the stomach above the diaphragm or in the lower esophagus above the cardia.

(3) Symptoms, such as ulceration, inflammation and stricture, produced by reactive changes of the lower esophagus or the upper stomach segment due to peptic activity. It would seem logical to assume that ulceration and stricture probably would depend first, on secretion of peptic juices in the area above the diaphragm or gastric mucosa, and above the cardia where there is no neutralization by food; or second, on regurgitation through an incompetent cardia with a degree of chaliasia and production of the same pathology and symptoms. This might constitute an adequate explanation of—

(a) why some slender patients of both sexes seem to develop shortening and stricture of the esophagus with high-grade symptoms,

(b) why some get such complete relief of symptoms on weight reduction,

(c) why others were never obese and have no improvement on weight reduction, and in fact, have had a significant weight loss rather than weight gain due to obstruction of the lower esophagus in the period before a diagnosis was made.

The following conclusions seem appropriate:

(1) The true incidence of clinically important hiatal hernia is not accurately known.

(2) The incidence of hiatal hernia is high enough to make it a possible cause of symptoms in patients complaining of epigastric pain, chest pain, hematemesis, dysphagia, regurgitation, and anemia particularly if these are nocturnal or the patient has relief of the symptoms on belching or posture change.

(3) A number of patients having a hiatal hernia respond well to medical treatment, with dilatation if necessary. This number is high enough to make it worth while to make a real trial on medical treatment before surgical correction is felt to be necessary.

(4) The incidence in the older age group is high enough to make it of possible importance in patients with known or suspected coronary disease since hemorrhage is common in hiatal hernia and anticoagulants are a common treatment for coronary disease.

(5) A surgical correction of hiatal hernia is at times necessary but the rationale and the procedure should be carefully considered before subjecting the patient to surgery.

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Footnotes and References: Use the style of the *Quarterly Cumulative Index Medicus* published by the American Medical Association, which requires, in the order given: name of author, title of article, name of periodical, with volume, pages, month—day of month if weekly—and year as follows:

4. Doe, J. E., What I Know About It, J. Kans. M. S.
54:717-719 (Dec.) 1954.

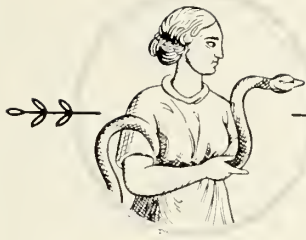
Include only those references specifically referred to in the text.

Reprints: An order slip for reprints with a table covering cost will be sent with the galley proof to each contributor.

Illustrations: A reasonable number of illustrations are allowed without cost to the author. Place the name of the author on the back of each illustration, table, etc. Submit clear and distinct, glossy photographs. Make drawings in black ink on white paper. Attach a slip of paper to the bottom of the illustration with the author's name, identification of article, and appropriate legend. Identify the top of the illustration. Photographs and drawings will be returned if so requested.

Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.



Medical HISTORY

Physical Diagnosis in Antiquity

RALPH H. MAJOR, M.D., *Kansas City*

AS SOME OF YOU may know, I have for many years been interested in physical diagnosis and in medical history. For this reason, I welcome an opportunity of discussing the knowledge the physician of classical antiquity possessed of physical diagnosis. Sir Philip Sydney is supposed to have remarked once that "the ancients have stolen all our best thoughts." While I do not give this statement unqualified assent, when I visited Pompeii a few years ago I was amazed to see that the inhabitants of that ancient Roman city, destroyed by Vesuvius in A.D. 79, had a remarkably designed water supply, an excellent sewage system with water closets in the homes—although this convenience was long supposed to have been discovered by Queen Elizabeth's godson, Sir John Harington, in 1596. Further wanderings through Pompeii proved that these pampered Romans were familiar with what present day architects call radiant heat and that the city possessed an extensive surgical clinic, in the ruins of which were discovered a fabulous collection of surgical instruments, now in the Naples Museum, which includes almost every type of knife, probe, forceps, saw and speculum illustrated in the instrument catalogs of today. While there can be no doubt that modern medical diagnosis rests in great measure on the discoveries of Auenbrugger, Laennec and Skoda, we may well pause from time to time and render homage to the ancient masters who saw so clearly and described so well. We can read today the case histories of Hippocrates written 2000 years ago and make the correct diagnosis, thanks to the accuracy of his observations and the lucidity of his prose. The two great luminaries of ancient medicine are by common consent Hippocrates and Galen. So high do they tower above all other physicians of antiquity

that we link their names together as though they were contemporaries, forgetting in our tendency to telescope past periods in time that Galen was actually born 600 years after the death of Hippocrates and the two men were no nearer being contemporaries than were Ambroise Paré and Will Mayo.

Hippocrates (460-370 B.C.) we honor as the Father of Medicine, a slightly poetic figure of speech,

The historical aspects of physical diagnosis in the times of Hippocrates and Galen, describing their diagnostic skills based on acute observation and physical examination.

stressing perhaps our conviction that we repudiate the doctrine of spontaneous generation, and, since every man or other animal must have a father, so it should be with medicine. But I would assert that every physician is a disciple of Hippocrates not certainly in his theories but in his general concepts and methods. Hippocrates laid down the methods we still pursue. He stressed the importance of a careful history and on one memorable occasion, studying a mysterious epidemic of paralysis which occurred in Ainos, a town in Thrace, found that the victims had partaken heavily of chick peas, the first known description of lathyrism, epidemics of which were described in subsequent centuries in India, Italy, France and North Africa. After a meticulous history, stressing heredity, place of birth and home, occupation, temperament and habits, Hippocrates proceeded to a

physical examination of the patient, followed by examination of the urine and feces.

Hippocrates' skill and originality in physical examination is shown by the number of eponyms bearing his name—Hippocratic facies, Hippocratic fingers, Hippocratic succussion, and other striking findings he described but not called by his name, such as the winged scapulae in pulmonary tuberculosis. Hippocrates makes many allusions to tuberculosis and in one interesting passage notes, "Patients with kyphosis often have cheesy nodules in the lungs and collections of pus in the flanks." Here Hippocrates seems to have stolen some of Percival Pott's best thoughts. In describing the physical findings in pulmonary disease, Hippocrates notes that, when, with your ear on the patient's back, "you listen for some time, it boils within like vinegar." This passage proves that Hippocrates practised auscultation and heard râles. Laennec, in his immortal *Traité de l'auscultation médiate* (1819) called attention to this passage from Hippocrates. Another passage shows he was familiar with auscultation when he spoke of diseases of the lung and notes that you hear a rub that squeaks like a leather strap—certainly a pleural friction rub. It seems proved that Hippocrates employed inspection, palpation, percussion and auscultation in the examination of his patients.

After the death of Hippocrates, there was no leader of his stature. Yet, there were worthy successors who followed his methods. Ruphos of Ephesus (c. 98-117 A.D.) wrote a classic *On the Interrogation of Patients* and a book on the pulse, of which Sir William Broadbent wrote in 1890, "His description of the characters of the pulse leaves little to be added at the present day." Ruphos described the pulse according to five characteristics—(1) rate—pulsus frequens, pulsus rarus (rapid or slow); (2) size—pulsus magnus or parvus (large or small); (3) type of wave—celer or tardus (abrupt or prolonged); (4) rhythm—pulsus regularis or irregularis (regular or irregular); (5) tension—pulsus durus or mollis (hard or soft).

Aurelius Cornelius Celsus (25 B.C.-50 A.D.) was not a physician but the author of an encyclopedia. The section on medicine, *De medicina*, was the first medical work printed after the invention of printing. Because of his remarkable erudition, Celsus was called the Roman Hippocrates; because of his chaste Latin style, he was known as Cicero medicorum—the Cicero of the physicians. This remarkable work, which went through more subsequent editions than any medical work published, contained sections on the history of medicine, diet, hygiene, materia medica, skin diseases, and surgery, this last section showing, as Garrison remarks, that "Roman surgery attained a

degree of perfection which it was not to reach again before the time of Ambroise Paré."

The importance of physical diagnosis is stressed repeatedly by Celsus. Here we find the phrase we read, when as students we began the course in pathology—"The signs of inflammation are four—rubor (redness), tumor (swelling), cum calore et dolore (with heat and pain)." "Fluid," he notes, "often collects within the abdomen so that, if it be shaken by any movement of the body, fluctuation of the fluid can be seen." The fluid wave, then, was described by Celsus more than 900 years ago.

In Galen (c. 130-200 A.D.) we meet one of the towering figures of medical history. Like his fellow Greek, Aristotle, whom the early Church had taken to its bosom as the source of true philosophy, so Galen, like his fellow pagan, became the pontifex maximus of scholastic medicine, a lofty post that aroused the enmity of later physicians. However, Galen had been dead centuries before this infallibility had been conferred, so we should not blame him for it, nor speak of him spitefully, as many generations have done.

Galen began his astonishing career at the age of 28 by demonstrating that section of the recurrent laryngeal nerve produced a complete loss of voice. This memorable experiment also proved, as he pointed out, that the will to speak originates in the brain, as does intelligence and desire, and not in the heart, as some philosophers and most poets believed. From this day for the next half century, Galen was, to employ the phrase of Claude Bernard, asking questions of Nature and recording her answers. This recording was a very extensive task. Some 180 books written by Galen have survived, and as many have been lost. No scholar present or past has ever claimed to have read all of Galen's works.

It is perhaps as an anatomist and physiologist that Galen is best remembered. His anatomical knowledge was amazing. He was, of course, the anatomical heir of his predecessors, but he also made great contributions. He described practically all the muscles of the body we know today, employing the names we still do today. He described all the cranial nerves save one; he described the cervical plexus, the brachial plexus, the sacro-iliac plexus, and differentiated motor nerves from sensory nerves. He described the ductus arteriosus 1400 years before Botallo rediscovered it and the duct of Sylvius the same length of time before Sylvius made his rediscovery. His descriptions of the mechanism of respiration, of digestion, of cerebellar and spinal cord function read as if copied from a 20th century textbook of physiology. His great knowledge of anatomy and physiology is apparent in his clinical reports. He explains to two bewildered Roman sur-

geons, whose thyroidectomized patients have lost their voices, that the patients' recurrent laryngeal nerves had been cut. He pointed out to the physicians of the sophist Pausanias that the numbness of their patient's fingers was caused by an injury to cervical nerves produced when he was thrown from his chariot and that his neck should be treated and not his fingers. In another passage, Galen gives a classic but apparently overlooked description of what we call today Jacksonian epilepsy. Galen was a master of what we call today psychosomatic medicine. We see this in two of his most interesting books, *Pain as Means of Diagnosis* and in *Disturbance of Function Without Lesion of an Organ*. It is also beautifully illustrated in the oft retold story of the noble Roman lady who would neither eat nor sleep and seemed on the verge of madness until Galen discovered that her pulse became very rapid and irregular when she heard the name of Pylades the dancer.

These are some of the masters of antiquity—Hippocrates, Ruphos, Celsus and Galen—who appreciated physical diagnosis. Medicine presently became very speculative, metaphysical and theoretical. Physical diagnosis was submerged until rescued by Auenbrugger and Laennec. Is it in danger now of being submerged by speculation or gadgetry?

A LESSON FROM HISTORY

It is a refreshing surprise to hear that Soviet Russia has learned a lesson from capitalist history. The chronicles of the Western World show that, in one civilization after another, the trademark has been one of man's most useful inventions. And now the Soviet Union has decided that trademarks, although a foundation of free enterprise, must be made part of the Communist economy.

The action was taken when the Government found that its "no-name firms" were turning out poor products, in spite of constant inspection. Entire industrial groups were producing shoddy wares. Lack of identity resulted in lack of incentive, and was clearly responsible for lack of quality.

Consequently, to distinguish one state-owned firm from another, the Government first gave each a name. It then required many firms to identify their products with a trademark.

"The trademark," explained V. A. Nikiforov, a Soviet economist, "makes it possible for the consumer to select the goods which he likes. . . . This forces other firms to undertake measures to improve the quality of their own product in harmony with the demands of the consumer. Thus the trademark promotes the drive for raising the quality of production."

Professor Marshall I. Goldman of Wellesley College, in a recent article on trademarks in the Soviet Union, reported that Russia is hoping by 1965 to have some 30 to 40 different brands of radios and phonographs and about 20 types of television sets.

Throughout history, the trademark has been recognized both as a stamp of identification and as an incentive to quality.

In ancient Egypt, a slave put his own mark on every brick so that the slavemaster knew whom to punish if one was defective. Soap makers in Rome received stiff fines and were prevented from doing business if their products were unbranded. Flemish tapestry workers who failed to mark their products lost their right hands. In 1266, England passed a law requiring bakers to mark each loaf so that if a bad one turned up "it will be knowne in whom the fault lies."

But now in the United States, some critics of the drug industry would like to remove trademark names from prescription drugs. They hold to the theory that abolishing or minimizing the value of trademarks would greatly reduce the cost of medicines. They seem to ignore the fact that weakening the trademark system is likely—as the Soviets have found—to endanger quality and the public health.

Without trademarks, there would be far less incentive to produce prescription drugs of outstanding quality. Furthermore, although many products sold under common names are acceptable, they are not "identical" with their trade name counterparts. The fact is that "identical" medicines—if made by different firms—do not exist. Variations resulting from differences in production methods—differences in the size of particles, in the types of binders and coatings—often cause supposedly "identical" drugs to have different effects on the patient.

With the present system of trademark names, the physician relies on the integrity and reputation of the manufacturer, and specifies by name the exact product he wants his patient to receive. In this way, he knows the quality and effect of the medicine. If compelled to prescribe a drug by its common name, the physician would have no such guarantee. When human lives are at stake, inability to identify the manufacturer of drugs is a dangerous gamble.

The Russians, then, in matters less crucial than medicines, have found that inspection is no substitute for incentive. They have learned through costly experience that trademarks are the best protection for the consumer.

If trademark names on prescription drugs are weakened in America, we will be taking a step backward. Unlike the Soviets, we will have ignored a lesson from history.

KANSAS STATE BOARD OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in July 1962 and 1961

And Cumulative Totals for the First Seven Months of 1962 and 1961

<i>Disease</i>	<i>July</i>			<i>January to July Inclusive</i>		
	1962	1961	<i>5-Year Median</i>	1962	1961	<i>5-Year Median</i>
			1957-1961			1957-1961
Amebiasis	2	1	1	32	25	25
Aseptic meningitis	—	1	*	4	1	*
Brucellosis	—	10	7	13	28	38
Cancer	440	412	430	2,399	2,414	2,891
Diphtheria	—	—	—	—	—	—
Encephalitis, infectious	4	—	2	14	11	15
Gonorrhea	202	183	178	1,309	1,600	1,216
Hepatitis, infectious	22	57	8	331	544	174
Meningococcal, meningitis	—	1	1	10	12	11
Pertussis	6	—	4	22	17	38
Poliomyelitis	—	2	5	—	2	7
Rheumatic fever	—	—	—	7	4	3
Salmonellosis	12	11	*	32	33	*
Scarlet fever	6	4	3	406	845	452
Shigellosis	25	21	1	36	83	15
Streptococcal infections	32	46	8	901	907	240
Syphilis	110	56	109	716	740	784
Tinea capitis	—	6	7	74	74	134
Tuberculosis	15	18	40	156	181	229
Tularemia	1	2	2	7	9	19
Typhoid fever	—	—	—	—	2	3

* Statistics on 5-Year Median not available.

OLD VERSUS NEW RABIES VACCINES

According to a recent Public Health Service Bulletin about one-half of persons receiving prophylactic treatment for rabies following animal bites in 1961 were given "Semple" vaccine (vaccine of brain origin). One important manifestation of sensitivity to vaccine of brain origin is the occurrence of allergic encephalomyelitis. The myelin in the brain tissue has been implicated as the primary factor producing this sensitivity. McKendrick states that of 304,525 patients treated for rabies with "Semple" vaccine 42 developed paralysis from sensitivity to the vaccine and seven died. More recent studies, however, have suggested that encephalomyelitis may occur as often as one in 500 to 600 vaccinations.

Rabies vaccine is now being made from duck embryo and contains little if any of the "paralytic factor" contained in the Semple vaccine. It contains little if any myelin. This vaccine produces early development of antibodies—demonstrable in practically all patients by the tenth day. Reactions have also been noted to this vaccine, but they are generally much less severe and serious than those encountered with Semple vaccine. Local redness and induration at the site of injection may be observed. Systemic reactions are possible since the vaccine contains foreign protein, but they are rare. They usually take the form of chills, fever, malaise, and increased white count. In children irritability may be noted.

The President's Message

DEAR DOCTOR:

The profession of medicine has many purposes. The primary purpose must be associated with the acute care of those who are ill. The development of individuals who can challenge the minds of our youth to the point that they wish to make the profession of medicine their life work is another important purpose. The profession must foster and support intelligent research and programs which aid in the prevention and eradication of the medical problems, both from an organic and a socio-economic viewpoint.

These purposes must be based on the honest convictions of our members who are interested in teaching, private practice and organized medicine. A division in these areas does not promote good decisions; cooperation and understanding does.

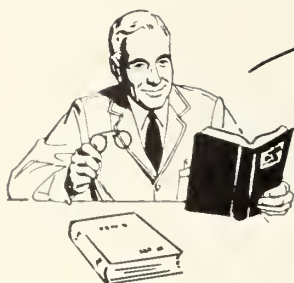
We must all exert every effort to be sure that intellectual freedom exists in our medical schools, research facilities and practice. This also places on us the responsibility that with this freedom there must be integrity.

Development of ideas fostering the purposes of medicine under intellectual freedom with integrity will continue to allow medicine to maintain its enviable position among the professions. When either intellectual freedom or integrity is lost to medicine, it will cease to be a profession.



Norton L. Francis M.D.

President



Book REVIEWS

FUNDAMENTAL SKILLS IN SURGERY, Thomas F. Nealon, Jr., M.D. W. B. Saunders Co., Philadelphia, 1962. 289 pages illustrated, \$8.50.

This fine book should be in every general practitioner's library. It is not a book for the surgical specialist and I don't think that Dr. Nealon wrote this book with the specialist in mind. Rather, as he states in the preface, the material is limited to those procedures the young physician is faced with in his practice where he has not had the experience and guidance of an older surgeon.

The book is completely illustrated and very clearly written. Areas of general surgery are lightly covered, but sufficiently, so that one can understand the author's intent and the reader can obtain sufficient information to guide him with a particular problem. His chapters on trauma and minor surgery contain many helpful suggestions in regard to the handling of those problems.

I recommend this book to the general practitioner who is doing some surgery. It would seem, also, that this would be a fine guide book for the senior medical student, intern, and resident.—S.L.V.

BLACKLOCK AND SOUTHWELL: A GUIDE TO HUMAN PARASITOLOGY FOR MEDICAL PRACTITIONERS. Revised by T. H. Davey, M.D., 7th Edition, Williams and Wilkins, Baltimore, 1961. 223 pages illustrated, \$7.00.

As the name of the book would suggest, this is a manual of pathogenic parasitology intended for physicians who must, from time to time, make a diagnosis of diseases caused by animal parasites as well as for students of tropical medicine and hygiene, public health and clinical parasitology. The emphasis throughout is on diagnosis, and the descriptions of parasitic organisms emphasize those characteristics which are diagnostically important. The authors have concentrated on the problems of physicians who have no laboratory near them and who must there-

fore depend largely on simple microscopic examinations.

The first three chapters are devoted to a discussion of diagnostic materials and methods. The bulk of the text consists of descriptions of the various classes of parasites, and each medically important species is dealt with in a systematic manner with notes on geographical distribution, habitat, morphological characters, life history, pathogenicity, diagnosis, and prevention. Numerous line drawings and diagrams amplify the text, and there are three color plates. The book is, of course, adequately indexed.

This is a well printed, well bound and concise book on medical parasitology that should quite well meet the needs of practicing physicians for a ready reference at those times when they are concerned with the possibility or actuality of parasitic diseases in their patients.—J.D.R.

AN ATLAS OF HEAD AND NECK SURGERY, John M. Lore, Jr., M.D. W. B. Saunders Co., Philadelphia, 1962. 490 pages illustrated, \$25.00.

The purpose of this atlas is to encompass in one volume related regional procedures of the head and neck. It is an atlas more intended for the plastic surgeon than the general surgeon.

It is a very well illustrated atlas with step by step procedures on one page facing drawings of the procedures.

There are chapters of general operative procedures on the following: the sinuses, nose, fractures of facial bones, the face, eyelids, ears, lips, parotid salivary gland, tumors and cysts of the mandible, oral cavity, neck, thyroid and parathyroids, the larynx, and esophagus.

The chapter on facial fractures is especially good and complete in the treatment of common fractures of the facial bones.

It is a good atlas for the library of the plastic

(Continued on page 506)



Along The BOOKSHELF

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RECENT ACQUISITIONS

- Shanks, S. C. Textbook of x-ray diagnosis, vol. 2. Saunders, 1962. 3rd ed.
- Flippin, Harrison. Medical state board questions and answers, 10th ed. Saunders, 1962.
- Baker, A. B. Clinical neurology, 2nd ed. Hoeber-Harper, 1962. 4 vol.
- Bakwin, Harry. Clinical management of behavior disorders in children, 2nd ed. Saunders, 1960.
- Bryan, W. J. Religious aspects of hypnosis. Thomas, 1962.
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- Sutton, Richard. The skin. Doubleday, 1962.
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- Ciba Foundation. Enzymes and drug action. Little, Brown, 1962.
- Kwapinski, J. B. Immunology of rheumatism. Appleton, 1962.
- Young, H. H. Yearbook of orthopedics and traumatic surgery. Yearbook, 1962.

MONOGRAPHS AVAILABLE IN THE LIBRARY

Hematology

- Ciba Limited. Essential hypertension; an international symposium. Springer-Verlag, 1960.
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- Hayhoe, F. Leukaemia. Little, Brown, 1960.
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- Sturgis, Cyrus. Hematology, 2nd ed. Thomas, 1955.
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- Wintrobe, Maxwell. Clinical hematology, 4th ed. Lea and Febiger, 1956.
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- Banyai, Andrew. Nontuberculous diseases of the chest. Thomas, 1954.
- Boies, Lawrence. Fundamentals of otolaryngology, 3rd ed. Saunders, 1959.
- Cherniack, R. Respiration in health and disease. Saunders, 1961.
- Hinshaw, Horton. Diseases of the chest. Saunders, 1956.
- Jackson, Chevalier. Diseases of the nose, throat, and ear, 2nd ed. Saunders, 1959.
- Mayer, Edgar. Pulmonary carcinoma. Lippincott, 1956.
- Pullen, Roscoe. Pulmonary diseases. Febiger, 1955.

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The Self-Employed Individuals Tax Retirement Act

(For many years the Federal Congress has explored the possibility of a tax deferment program for the self-employed. The recently concluded session of Congress passed a bill on this subject which was signed by the President. It contains considerably reduced benefits from previously announced versions but represents at least a beginning of legislation in this area. The American Medical Association, through its law department, has analyzed the provisions of this bill which are here recorded to enable the individual member to consider whether or not this bill will be of interest to him.—Editor)

The "Self-Employed Individuals Tax Retirement Act" provides tax benefits to those self-employed individuals and partners who set aside some of their earned income into formal retirement plans. Up to 10 per cent of earned income or \$2,500, whichever is less, can be contributed each year to a specified retirement plan. Half of this amount will be allowed as a tax deduction. A physician who contributes \$2,500 to this plan will be able to deduct \$1,250. All realized earnings within the plan are permitted to accumulate tax free.

This is how the new law will benefit the self-employed. Compare the situation of a sole practitioner (without employees) before and after the new law. Assume he's in a 50 per cent tax bracket and is able to put away \$2,500 a year towards his retirement. A married taxpayer with a taxable income of \$32,000 is in the 50 per cent tax bracket. Under the new law, by putting away the same \$2,500, he ends up with an additional \$625 of after-tax cash (half of the \$2,500 is deductible and in the 50 per cent tax bracket that saves him \$625 in cash). So, if nothing else, he can put away an additional \$625 each year toward retirement.

Assume the money is invested at 4 per cent. After 25 years, \$2,500 accumulating at the *full* 4 per cent (there is no income tax on the earnings) will come

to \$108,280. Before the new law, the same \$2,500 a year accumulating at 4 per cent would come to a total of some \$81,700. Also, under the new law the additional \$625 a year that is available can accumulate to an additional \$20,420 (even after taxes are paid each year).

On the payout from the fund, however, there is a tax to be paid. Assume for purposes of illustration that his other income in the year of payout will equal all his deductions so that his payout from the retirement fund will be subject to the lowest possible tax. The tax will be figured this way: The \$108,280 accumulated would first be reduced by the twenty-five \$1,250 annual contributions which were not deductible (only half of each \$2,500 contribution was deductible). That cuts down the taxable portion to \$77,030. The tax on one-fifth of that is first figured. On a joint return that is \$3,742. This figure is then multiplied by five, giving a total tax of \$18,710. Therefore, of the \$108,280 accumulation, the physician will keep \$89,570. Add to that the \$20,420 (after taxes) he has accumulated outside the plan by investing the annual \$625 tax savings. The total comes to \$109,990. That is \$28,290 more than he would have accumulated after taxes without the tax benefit of the new law.

It should be emphasized, however, that the illustration is based upon the assumption that his other income in the year of payout will equal all his deductions. If this is not the case, the tax benefit will be less depending upon his tax bracket. Also, it may be that for the physician without other significant income there may be an advantage to take his payout over a number of years in the form of an annuity.

In general, the new law will be most valuable to the self-employed with no employees, as in our example above. The more employees and the higher their compensation, the smaller the advantage to be gained from the new retirement system. For example, assume a physician pays out \$14,000 a year in salaries and

realizes \$25,000 for himself. He sets aside the maximum 10 per cent for his retirement, and contributes the same percentage, or \$1,400, to a pension plan for his employees. After allowing for the tax savings—counting deductions for what he contributes for himself and employees—he is out of pocket \$2,995 a year. That is \$495 more than he has set aside for his own retirement. Based upon the present yield of tax-exempt municipal bonds, he might be better off to avoid the mechanism of the new law and set up a retirement fund with tax-exempt bonds. Reinvesting the tax-exempt income in the more tax-exempt bonds can also produce a good retirement fund without fulfilling the technical requirements of a law that provides for tax penalties if you revise your estate planning or if your financial needs change.

Eligibility to draw on retirement funds begins at age 59½—insurance age 60. It is mandatory by age 70½. These ages apply without regard to whether the self-employed person has actually retired.

If an individual with a retirement fund starts drawing on it before he reaches age 59½, he will be required to pay a penalty tax. If he dies, the fund will be paid to his beneficiaries under one of the various methods set up in the law. As shown in our illustration above, if he draws his money in a lump sum after age 59½, he must pay regular taxes, but on an averaging formula applied as if the fund had been drawn over a period of five years.

The amounts put into retirement plan under the new law may be invested in any of the following ways: The contributions to the plan may be turned over to a bank as trustee. The trustee can then invest them in stocks, bonds, mutual funds, annuities, life insurance contracts, other investments. Investment decisions can be controlled by the self-employed person setting up the plan.

In addition to the trustee plan, one of the following is available.

In a trustee insurance plan where someone other than a bank is trustee, investments are limited to an annuity, endowment or life insurance. The life insurance company must supply whatever information about the trust the Treasury Regulations will require.

The participant may select a custodian account where no trust is required. Contributions are turned over to a special bank custodial account and invested solely in endowment, annuity or life insurance.

The direct purchase plan requires no trust where annuities, including variable annuities, or face amount certificates are purchased.

Investments in special mutual fund plans could be selected or contributions can be used to purchase United States bonds which would pay out principal and accumulated interest when cashed in at retirement.

The Kansas Bar Association is working on a piece of State legislation designed to supplement the above with an additional program. This is not yet complete but in its present form asks the Kansas Legislature to authorize persons to form a corporation consisting of not less than three in number who hold a similar license from an official State licensing agent to perform professional services. The corporation then would consist of three or more doctors of medicine, or attorneys, or dentists, or any other professional persons, provided all members of the corporation hold a similar license.

Members of the corporation would invest a portion of their income into a special corporate fund. The corporation would be granted some tax benefits. This proposal does not permit participation in the corporation by the wives or employees.

This represents another effort to aid the self-employed in the overall tax problems they now face. Further information on this State program will be issued when plans for legislative action have been completed.

Medical Education Loan Program

A far reaching new medical education loan guarantee program is now under way in American medicine. The goal of this program is to help eliminate the financial barrier to medicine for all who are qualified and accepted by approved training institutions. It is designed to provide a means of financing a substantial portion of the cost of a medical education.

The loan program for medical students, interns and residents is the result of a cooperative effort by American medicine and private enterprise.

The program is administered by the American Medical Association's Education and Research Foundation. The ERF has established a loan guarantee fund. On the basis of this fund, the bank will lend up to \$1,500 each year to students. The ERF in effect acts as co-signer. For each \$1 on deposit in the ERF's loan guarantee fund, the bank will lend \$12.50.

More than 3,300 students, interns and residents have borrowed more than \$6,000,000 through this fund since it was started last February. Physicians and others have contributed almost \$700,000 to the loan guarantee fund, which makes possible these loans.

The guarantee fund is almost depleted and more money is needed immediately to keep up the loan program. Eventually it will become self-sustaining as loans are repaid, but right now substantial financial help is needed. Your check to the AMA-ERF, 535 North Dearborn St., Chicago, will help to keep this

important program viable. Contributions to the Foundation are tax deductible.

Book Reviews

(Continued from page 502)

surgeon and the general surgeon who does surgery on the head and neck. A broad, basic knowledge relative to the principles and practice of general surgery is needed.—*W.H.Z.*

PRACTICAL ANESTHESIOLOGY, Joseph F. Artusio, Jr., M.D. and Valentino D. B. Mazzia, M.D. C. V. Mosby Co., St. Louis, 1962. 318 pages illustrated, \$7.75.

The preface to this book states that the book was "designed for medical students and general practitioners as a handbook of current anesthesiology." It should serve this purpose well. The book should also be valuable to the specialist as a quick reference.

The 307 pages are divided into 43 chapters. Each chapter covers a different facet of the field from history of anesthesiology to researches. The book is well written and has a pleasing layout with easily read print and a good index. A helpful addition to each chapter is a list of suggested readings.

The chapters on newer anesthetic agents and adjuvant drugs are especially useful and well written.

For those physicians doing either full or part time work in anesthesiology this is a good book to read and keep close at hand.—*F.C.T.*

A TEXTBOOK OF OBSTETRICS, Duncan E. Reid, W. B. Saunders Company, Philadelphia, 1962. 1087 pages, \$18.50.

It is refreshing to review this thoroughly new textbook on obstetrics with the cobwebs of the past largely brushed aside. Written primarily as a textbook for students, it follows the logical sequence beginning with anatomy and conception and continuing into the early examination and management of the newborn.

The concisely written and easy to read style gives the reader a quick grasp of the basic and often quite detailed factors of each subject. Features of biology and physiology are interwoven throughout as are preferred methods and policies of care in use at the Boston Lying-in Hospital. Adequate references are included for anyone who is looking for an unusually detailed review or varied methods of treatment of any problem.

Beautifully illustrated with well chosen pictures, drawings and charts, this reviewer unqualifiedly rec-

ommends this work to any general practitioner or specialist who can use an up to date text on the varied problems of obstetrics.—*R.E.P.*

ATLAS OF EYE SURGERY, R. Townley Paton; Byron Smith, and Herbert M. Katzin. McGraw-Hill Book Company, New York, 1962. 492 pages, \$25.

This is a revised and enlarged edition of the well received 1957 Atlas. In Part I, eight basic groups of operations are described. These cover the common procedures for intraocular surgery, muscle surgery, and enucleations. Since the book is written primarily for the resident in ophthalmology to help him in his technique, there is a minimum of text and a profusion of illustrations. The illustrations are somewhat diagrammatic, well detailed and adequate. This part has been enlarged with the addition of a section on alpha-chymotrypsin in cataract surgery, and a section on the handling of iris prolapse.

Part II, written by Dr. Byron Smith, is new and almost doubles the size of the text. Dr. Smith covers all the essential plastic procedures of the eye and adnexia.

The Atlas does its primary purpose well. It is of value not only to residents but also as a source of learning and ready reference for ophthalmologists of all degrees of experience.—*G.F.G.*

THE LOGAN CLENDENING TRAVELLING FELLOWSHIP IN THE HISTORY OF MEDICINE

Applications are invited for the above Fellowship which is tenable for three months during the summer of 1963.

The Fellowship is of the value of \$1,000 and is open to registered medical students (or college seniors accepted for medical school) of any recognized medical school in the United States or Canada.

This Fellowship memorializes the late Dr. Logan Clendening (1884-1945) who was a keen bibliophile and medical historian of international renown. The Fellowship will enable medical students to follow at least two of Dr. Clendening's abiding interests—travel and medical history.

Applicants may elect to travel anywhere in the world for the purpose of studying any aspect of medical history of interest to them.

Details of proposed projects should be submitted on a special form (obtainable from the undersigned) which should be returned not later than March 15, 1963. Contact: L. R. C. AGNEW, A.M., M.D., Chairman, Department of the History of Medicine, The University of Kansas Medical Center, Kansas City 3, Kansas.



Personalities—IN KANSAS MEDICINE

The Kansas Committee of the Association of American Physicians and Surgeons, Inc., elected **Bruce G. Smith** as chairman at the annual meeting in Wichita in September. Other officers elected were: **Calvin Openshaw**, Hutchinson, vice-chairman; **Richard Schneider**, Kansas City, secretary; and **Benjamin W. Barker**, Wichita, treasurer.

The city of Syracuse recently honored **C. B. Grissom** for 42 years of service in that community and the surrounding area. Dr. Grissom retired from practice the first of the year.

William C. Dreese and **J. W. Welch** of Halstead have been elected fellows of the International College of Surgeons.

T. D. Blasdel of Parsons has announced his retirement after 50 years of practice in that community.

A one-day medical symposium sponsored by the Hertzler Clinic was held in Halstead in October. Among the physicians participating in the program were **Paul Feldman**, Topeka; **Paul Laybourne, Jr.**, Kansas City; and **J. E. Morton**, Halstead.

A. M. Cherner, Hays, was re-elected president of the Kansas Division of the American Cancer Society at the organization's annual meeting held in Topeka during the last part of September.

H. L. Patterson, Larned, has been named a Diplomate of the American Board of Ophthalmology.

Gary Wood and **Ernest Crow**, both of Wichita, were among those attending a meeting of the American Heart Association in Cleveland, Ohio, during October.

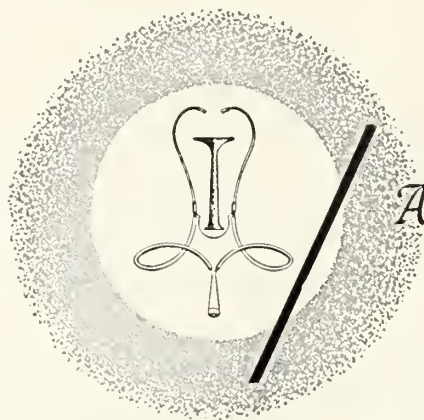
The Midwest Conference of X-ray Technicians was the host of a five-state x-ray meeting held at the Lassen Hotel in Wichita during October. Lecturers for the meeting included **A. F. Rossitto**, and **I. E. Rhodes**, both of Wichita. **Dr. and Mrs. H. R. Schmidt**, Newton, spoke to the group during one of the evening sessions.

Paul M. Powell, Topeka, attended the General Assembly of the International College of Surgeons in New York City in September.

John I. Waller, Halstead, spoke to the Harvey County Medical Assistants at their meeting in September. He presented an informative talk of his experiences while on the hospital ship **HOPE** in Peru this spring.

George Zubowicz, Osawatomie, was one of the participants in the Round Table on Mental Health at the Milbank Memorial Fund's annual conference in New York City in September.

John K. Fulton, **John G. Shellito** and **Wayne C. Bartlett**, all of Wichita, and **James M. Mott**, Topeka, participated in the joint meeting of the Kansas Tuberculosis and Health Association and the Kansas Thoracic Society. The meeting was held in Wichita during September.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the Doctor's Calendar. Notice of the session is posted in advance to allow the physician time to make preparations.

1962

DECEMBER

American College of Physicians postgraduate course, *Psychiatry for the Internist*, December 3-7. University of Southern California School of Medicine. Contact: Edward C. Rosenow, Jr., M.D., Exec. Director, The American College of Physicians, 4200 Pine Street, Philadelphia.

American College of Chest Physicians postgraduate course, *Occupational Diseases of the Heart and Lungs*, December 3-7. Statler-Hilton Hotel, Detroit. Contact: American College of Chest Physicians, 112 East Chestnut, Chicago.

Eighth Hahnemann Symposium, *Medical Considerations in the Surgical Patient*, December 12-14. Sheraton Hotel, Philadelphia. Contact: Wilbur W. Oaks, M.D., Director, Hahnemann Medical College & Hospital, 230 N. Broad Street, Philadelphia.

Department of Postgraduate Medical Education, University of Kansas School of Medicine postgraduate course *The Eye in Physical Diagnosis*, December 13-14. Contact: The Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas.

1963

JANUARY

American Society for Surgery of the Hand, *Surgery of the Hand*, January 18-19. Americana Hotel, Bal Harbour, Miami Beach. Contact: Don L. Eyler, M.D., Secretary, 1919 Hayes Street, Nashville.

Annual postgraduate course for the General Practitioner, *General Practice Review*, January 13-19. University of Colorado School of Medicine. Contact: The Office of Postgraduate Medical Education, Uni-

versity of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver.

American College of Surgeons, sectional meeting, January 12-23, Hotel Westward Ho, Phoenix.

American College of Physicians postgraduate course, *Diseases of the Blood Vessels and Thromboembolism—Diagnosis and Treatment*, January 21-25. Cornell University Medical College and the New York Hospital. Contact: E. C. Rosenow, Jr., M.D., Exec. Director, The American College of Chest Physicians, 4200 Pine Street, Philadelphia.

FEBRUARY

Department of Postgraduate Medical Education, University of Kansas School of Medicine postgraduate courses:

Feb. 11-15 Medical-Surgical CLINICAL SYMPOSIA: *Endocrinology, Medical Problems in Surgical Patients, Psychiatry, Gastroenterology, Pulmonary Disease.*

Feb. 18-20 *Radiology and Radioactive Isotopes.*

Contact: The Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas.

The American College of Radiology, February 6-9, Drake Hotel, Chicago. Contact: William Stronach, Exec. Director, 20 N. Wacker Drive, Chicago.

American College of Physicians postgraduate course, *Modern Physiological Concepts of Cardiovascular Disease*, February 11-15. Presbyterian Medical Center, San Francisco. Contact: E. C. Rosenow, Jr., M.D., Exec. Director, The American College of Physicians, 4200 Pine Street, Philadelphia.

Postgraduate course, *Management of Trauma*, February 27-March 1. University of Colorado School of Medicine. Contact: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver.

Maternal Mortality

A 32-year-old gravida IV, para III died following delivery in a well equipped hospital with a certificate diagnosis of massive pulmonary embolism and thrombosis of the pelvic veins following spontaneous abortion of a five month fetus. An autopsy was performed. History revealed that in the ten years preceding death, the patient had had three full term, normal, spontaneous deliveries without complication except for a diagnosis of "cardiac asthma" in her fourth pregnancy. During this time there had been no study of the cardiac situation nor had the patient been on any therapy. She had been seen from time to time for various minor complaints by the attending physician but at no time was there any indication of cardiac inadequacy.

She reported for care during the third month of the final pregnancy at which time a diagnosis of mitral stenosis and insufficiency was made and the patient's activities were restricted. At this time there was some consideration of mitral valvulotomy but the absence of symptoms was taken as indication to defer this. Subsequently, she developed dyspnea and pulmonary hypertension at which time she was digitalized. This was approximately three weeks before her admission to the hospital. During her prenatal course, she was under the care of a competent internist as well as the obstetrician.

When the patient was five months pregnant, she developed an acute respiratory infection which was treated with prophylactic penicillin and, when she failed to respond to this, she was hospitalized. She was acutely ill with chills and fever and a temperature elevation of 100 to 102 degrees. She was cyanotic and dyspneic and there were coarse rales throughout the lungs. Consultation was obtained with other cardiologists at this time and various therapeutic procedures were carried out. On the third day of her hospitalization, there was slight improvement but her course was generally downhill. About 30 hours before death, she expelled a five month, stillborn fetus with scant bleeding. She expired on the fifth day after admission.

Autopsy diagnoses were rheumatic pancarditis, rheumatic pneumonitis, bilateral hydrothorax, acute and chronic congestion of the liver, chronic passive congestion of the spleen and a large, postabortal uterus.

Committee opinion: The committee considered this an indirect obstetrical death due to rheumatic heart disease complicated by pulmonary infection. There was one difference of opinion among the members, the minority holding that the death was unavoidable but the majority believing that it should be classified as avoidable inasmuch as this patient presented Class II findings and such patients can be saved by cardiac surgery performed during pregnancy. The procedure is tolerated well during the first and early second trimesters and could have been carried out at or before the time of digitalization.

Classification: Maternal death, indirect obstetric, avoidable.

Cardiopulmonary Resuscitation

Possible dangers in the indiscriminate use of the closed chest method of cardiopulmonary resuscitation have prompted the issuance of a joint statement by the Industrial Medical Association, the American Heart Association and the American National Red Cross as a guide to the public regarding this new first aid technique which makes it possible to continue blood circulation without opening the chest.

While acknowledging the usefulness of the closed chest method as a temporary medical procedure in certain cases of stoppage or disruption of heart beat, the statement stresses the importance of its application *only* in the hands of carefully trained personnel. The use of this method in untrained hands was reported responsible for a variety of injuries to patients, including damage to the heart and liver, internal bleeding, multiple rib fractures, and puncture of the lungs.

The sponsoring organizations urge that emphasis be placed on training physicians, nurses and specially qualified emergency rescue personnel so that the procedure may become more widely available.

Following is a statement reprinted from the *Journal of Occupational Medicine*, September, 1962 issue (Vol. 4, No. 9).

The Closed Chest Method of Cardiopulmonary Resuscitation—Benefits and Hazards

An original statement on the closed-chest method of cardiopulmonary resuscitation prepared by the American Heart Association has been revised to incorporate recommendations of an Ad Hoc Committee of the Industrial Medical Association appointed for this purpose. In its present form this statement is subscribed to by the Industrial Medical Association, the American Heart Association, and the American National Red Cross.

In view of the growing interest in the closed chest method of cardiopulmonary resuscitation, and the possible dangers in its indiscriminate use, the following statement has been prepared as a guide to the public regarding the present place of this new technique.

The closed chest method of cardiopulmonary resuscitation has been proved effective as a medical procedure in certain cases of stoppage or disruption of the heart beat. However, it is to be considered a temporary method and additional medical treatment, which may include the use of drugs and an electric defibrillator, is usually required to restore the circulation permanently.

The heart beat may stop as a result of a variety of conditions or circumstances such as water submersion, electrical shock, asphyxiation, heart attack, or during anesthesia or surgery. Most people who experience sudden stoppage or disruption of the heart beat (cardiac arrest) cannot be saved even under ideal circumstances in a hospital. The least measure of success has been experienced in coronary heart "attack" cases. However, the prompt use of cardiopulmonary resuscitation has enabled lives to be saved which previously might have been lost. The new technique of closed chest cardiac massage makes it possible to continue blood circulation without opening the chest, thus greatly extending the possibilities for attempting saving of life. Consequently, it is the desire of all concerned to achieve widespread use of this method where it can be used safely and effectively.

The public should be advised, however, that the application of closed chest cardiopulmonary resuscitation calls for a working diagnosis of the victim's condition. It is important to be sure that the circulation has actually stopped because the method involves certain hazards. Reported injuries to patients have included damage to the heart and liver, internal bleeding, multiple rib fractures, and puncture of the lungs. In untrained hands the risk of injury is increased. It is particularly important to avoid the possibility of inflicting serious injury on a person under the mistaken impression that cardiac arrest has occurred when the individual has simply fainted or lost consciousness from some other cause.

Successful application of closed chest cardiopulmonary resuscitation depends on thorough and careful training. One is most unlikely to be able to achieve artificial blood circulation by this method if his only training is from reading written instructions.

In view of these facts, it is suggested that closed chest cardiopulmonary resuscitation be applied only by carefully trained personnel so that it may be utilized with the greatest safety and effectiveness. Two qualified persons are preferable because it is necessary to maintain artificial respiration at the same time the heart is being massaged externally. A decision as to whether training in this procedure should be extended to certain segments of the general public must be postponed until further experience accumulates.

The organizations joining in this statement believe that emphasis should be placed at this time in training physicians, dentists, nurses and specially qualified emergency rescue personnel so that the procedure will become more widely available.



MARTIN L. BRAKEBILL, M.D.

Martin L. Brakebill, 82, Sharon Springs, died September 13 at St. Mary's Hospital, Kansas City, Kansas. Dr. Brakebill had practiced medicine at Florence, Peabody, Morland and Sharon Springs for 50 years.

He was born at Dalton, Georgia, on September 1, 1880. After receiving his A.B. Degree from Baker University in 1906, he taught school for several years before entering the University of Kansas School of Medicine, receiving his medical degree in 1912.

Since 1940, and until his retirement in 1957, he had been surgeon at Sharon Springs for the Union Pacific Railroad. He was a veteran of World War I, and a member of the Methodist church and several medical organizations.

Surviving Dr. Brakebill are his wife, a son and two daughters.

WILFRED COX, M.D.

Wilfred Cox, 67, Wichita, died October 3 at St. Francis Hospital in Wichita.

He was born August 22, 1895, at Sharon Springs, Kansas. He received his medical degree from the University of Kansas School of Medicine in 1921 and had practiced as a physician and surgeon in Wichita since 1925, after moving there from Anthony, Kansas.

Dr. Cox was a veteran of World War I. He was a member of the Methodist church, Kiwanis club, and the Masonic Lodge, as well as various medical associations.

Dr. Cox is survived by his wife and a son.

CARL M. EPSTEIN, M.D.

Carl M. Epstein, 50, director of adult psychotherapy service at the Menninger Foundation died October 13 in a Topeka hospital.

Born September 9, 1912, at Salem, Massachusetts, Dr. Epstein received his Ph.D. degree in psychology from Brown University, Providence, Rhode Island, and graduated from Tufts College Medical School, Boston, Massachusetts, in 1939. He was associated with the Menninger Foundation since 1947, and was consultant to the Veterans Administration Hospital in Topeka since 1948.

Dr. Epstein was a member of Beth Sholom Temple and numerous medical organizations.

He is survived by his wife and one daughter.

The Kansas Medical Society—1962-1963

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Bronchiectasis

Regression of Bronchiectasis in the Adult: Case Report

ALFRED M. TOCKER, M.D. and

LILIA M. RODRIGUEZ TOCKER, M.D., *Wichita*

BRONCHIECTASIS is generally recognized as a chronic progressive disease. Regression, known to occur frequently in children,¹ is a far less likely prognostic possibility in adults. Nevertheless, such regression does occasionally occur in adults, as demonstrated by the following case report.

Case Report

Mrs. J. O., a 32-year-old white female, complaining of chronic pulmonary symptoms of several years duration, was demonstrated bronchographically to have bronchiectasis of the right middle lobe and of the basilar segments of the left lower lobe and of the lingula of the left upper lobe (*Figure 1, a, b*). Comparison with a bronchogram made approximately two years previously showed similar findings.

Bilateral resection of the pathological segments was advised. Resection of the right middle lobe first, followed later by resection of the basilar segments of the left lower lobe and lingula of the left upper lobe was recommended. However, the patient requested that the left side—the more involved side—be operated first.

On October 8, 1953, a left lower lobe basilar segmental resection and linguectomy were performed in Oklahoma City. Care was taken to spare the apparently uninvolved superior segment of the left

lower lobe in accordance with the principle of conserving all uninvolved lung tissue possible in cases requiring extensive bilateral resections. This operation was complicated by a bronchopleurocutaneous fistula which persisted and did not permit full expansion of the remaining portion of the left lung.

Regression of bronchiectasis, known to occur frequently in children, occasionally occurs in adults as well (although such prognostic possibility is far less likely).

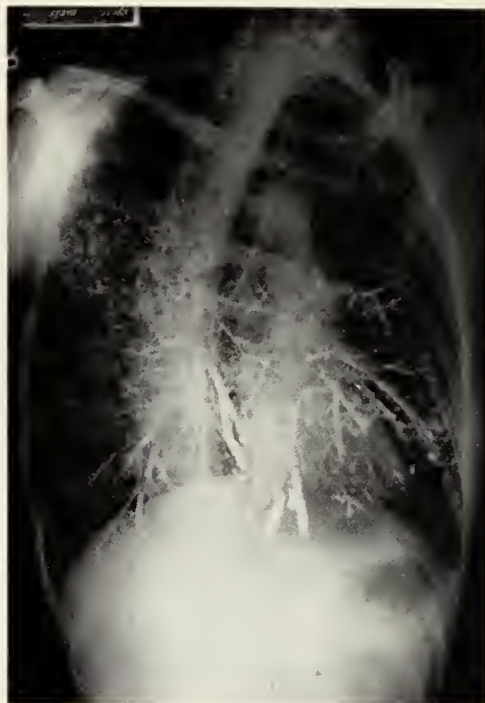
The authors also caution that Pap smears and minute biopsies of the bronchi in the presence of such chronic infections are difficult to interpret and may be misleading.

For this reason, right middle lobectomy was not performed.

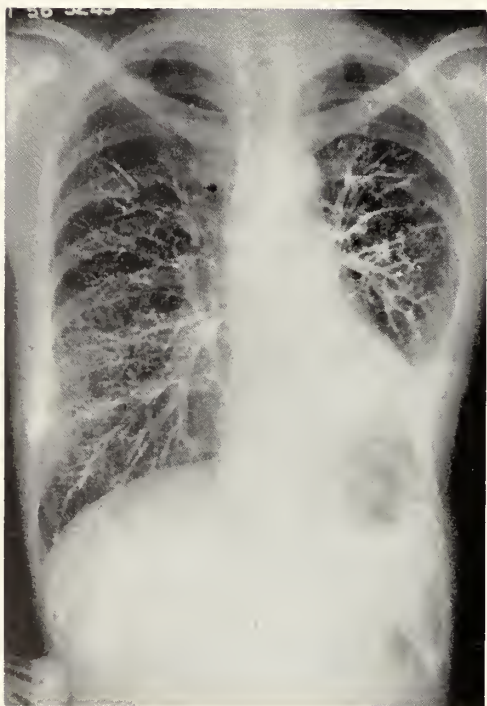
On April 4, 1955, one of us (A. T.) effected closure of the persistent bronchopleurocutaneous fistula by excision of the fistulous tract and by placing a pedicle of latissimus dorsi muscle over the lung surface in the region of the excised tract.



A



B



C



D

Figure 1. A and B: Preoperative PA and oblique bronchograms of September 4, 1953, prior to pulmonary resection, showing extensive saccular and cylindrical bronchiectasis of the right middle lobe, the basilar segments of the left lower lobe and the lingula of the left upper lobe. C: Bronchogram (PA view), June 11, 1956, showing normal right bronchial tree. The right middle lobe bronchiectasis seen on the bronchogram of September 4, 1953 (A and B) is not present. D: Bronchogram (spot film), June 11, 1956, showing extensive bronchiectasis of the remaining superior segment of the left lower lobe.

On June 11, 1956, a bronchogram revealed a normal tracheo-bronchial tree on the right side (the rather extensive bronchiectasis of the right middle lobe having regressed to give a normal configuration of the bronchus and its terminal branches); on the left side the absence of the resected segments was demonstrated as well as extensive bronchiectasis of the superior segment of the left lower lobe (which segment, uninvolved on pre-operative bronchograms, had been spared), with the remainder of the left bronchial tree normal (*Figure 1, c, d*). Subsequent bronchograms in December, 1961, show similar findings.

The patient had no further difficulty, except for susceptibility to respiratory infections which, however, was not marked until December, 1961. She had hemoptysis over a period of four days at that time. Bronchoscopy performed at that time (A. T.) revealed the usual findings of chronic irritation of the bronchial mucosa on the right side. A puddle of secretions was aspirated from the left side. Pap smears from the left side were reported as showing normal cells, and those from the right side as showing atypical benign cells. Smears, and subsequently cultures, were negative for acid fast bacilli and fungi. Biopsy from the left side showed chronic bronchitis. Biopsy taken from the lower margin of the orifice of the middle lobe bronchus on the right side was reported as showing cells compatible with the diagnosis of bronchogenic carcinoma (*Figure 2*).

As the diagnosis of bronchogenic carcinoma was not supported by the bronchoscopic examination and x-rays (including a very satisfactory bronchogram),

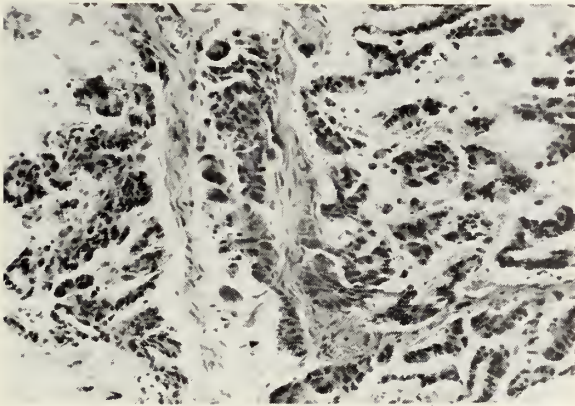


Figure 2. Microscopic section of biopsy of mucosa at orifice of right middle lobe bronchus (12-9-61) reveals findings compatible with a diagnosis of bronchogenic carcinoma. There appear to be a few islands of neoplastic epithelial cells, marked variation of the cellular size and staining reaction, numerous somewhat hyperchromatic giant nuclei and scattered mitotic figures.

all studies were repeated January 8, 1962. Bronchoscopic visualization and smears and cultures showed findings similar to those of her previous study. Pap smears from the left side again showed normal cells, and those from the right side showed atypical benign cells. Biopsy from the left side showed chronic bronchitis, and several biopsies taken again from the lower margin of the orifice of the right middle lobe bronchus showed chronic bronchitis with advanced squamous metaplasia. Subsequent x-ray studies revealed no further changes.

The patient was followed until March 8, 1962, when she moved to Phoenix, Arizona, and has continued under the care of another physician. Correspondence to May, 1962, indicates no further hemoptysis has occurred and her condition remains unchanged with no further difficulties.

Discussion

Although bronchiectasis which occurs in an adult in the course of a pulmonary infection of short duration is known to be reversible, chronic bronchiectasis is, as a rule, a slowly progressive disease. The microscopic picture is that of chronic permanent destructive changes. Nevertheless, occasionally regressive changes do take place, such as demonstrated in the case presented, with return of formerly markedly dilated areas of the bronchial tree to normal configuration, as demonstrated bronchographically.

Changes in the bronchial epithelium in chronic pulmonary diseases (such as chronic bronchitis, chronic bronchiectasis and emphysema with associated bronchial changes) present an understandingly difficult problem of interpretation on Pap smear studies to the pathologist. Abnormal cells, some with mitotic figures, may lead to a suspicion of carcinomatous changes. The authors feel that a report of cells on a Pap smear from the bronchi compatible with a diagnosis of bronchogenic carcinoma must never be accepted as an absolute diagnosis, but merely serves as an indication for further investigation. Vice versa, a negative Pap smear study for carcinomatous cells does not rule out the possibility of bronchogenic carcinoma. Biopsy, although more reliable, particularly in the absence of a visible tumor and when only small bits of tissue are removed, presents the same problem. The advanced squamous metaplasia in the case presented mimicked the pathological picture of bronchogenic carcinoma.

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Aortic Grafts

Ureteral Obstruction as a Late Complication of Abdominal Aneurysm Resection

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and ERNEST M. BERKAS, M.D., *Wichita**

THE DEVELOPMENT OF techniques permitting successful surgical treatment of abdominal aneurysms has focused attention on the complications of ureteral obstruction as a complication of aneurysmal disease. The case presented here was found to have stenosis of the right ureter with hydro-ureter and hydronephrosis two years after abdominal aortic and iliac aneurysm repair.

Ureteral obstruction secondary to untreated abdominal aneurysm was first reported by Goodwin and Schumacher in 1947. In 1954 when discussing the causes of hydronephrosis, Hinman wrote, "We have recently seen such a rare etiologic agent as aneurysm of the abdominal aorta." Several additional case reports have now established that aneurysmal disease is an important cause of ureteral obstruction.³⁻⁹

Colp and Bernatz, in a recent review article pertaining to the urologic aspects of 400 cases of surgically treated abdominal aortic aneurysms, do not refer to ureteral obstruction as a late complication of aneurysm repair. We have not been able to find a case report on this complication. Undoubtedly ureteral stricture after aneurysm repair has occurred and may be noted more frequently henceforth as long-term survivors after aortic and iliac artery reconstruction become more prevalent.

Case Report

This 69-year-old white male was readmitted to the Wichita VA Hospital on January 5, 1961, with the chief complaint of right upper quadrant abdominal and right lower back pain which had been present for the past several weeks. The pain was not related to activity, any particular oral intake and was not associated with nausea, vomiting or constipation. There was no radiation of the pain.

Past history revealed that on July 10, 1958, resection of an aneurysm involving the terminal aorta, both common iliacs and both hypogastric arteries had been carried out. A Tapp-Edwards nylon graft was placed between the proximal aorta and both external iliac arteries. There was no recognized ureteral injury.

The patient had done well postoperatively and his general health had been good up until the onset of the present illness.

Physical examination revealed a relatively healthy 69-year-old male. There was abdominal tenderness of the right upper quadrant as well as right costovertebral angle tenderness. No abnormal mass could be palpated. The pulsations of the arteries of the lower extremities were within normal limits.

Ureteral obstruction has been reported as a complication of aneurysm, but not as a complication of resection and graft replacement. Satisfactory condition followed its recognition and correction. This complication may be seen more frequently in the future as more patients become long-term survivors of aortic grafts.

Laboratory data revealed a normal urinalysis, blood count and BUN.

Excretory urograms showed a normal left kidney. The right kidney showed no dye excretion prior to the 30-minute film. Right hydronephrosis was then apparent. A retrograde study of the right ureter revealed an obstruction 12 cm. above the bladder and a hydro-ureter and hydronephrosis proximal to the ureteral stricture (*Figure 1*). An intravenous pyelogram done in 1958 prior to the aortic and iliac surgery had revealed a bifid kidney pelvis, right ureteral displacement presumably by an aneurysm but no evidence of hydronephrosis.

On February 7, 1961, the right ureter was explored retroperitoneally through a right iliac incision. Inasmuch as the ureter was intimately adherent to the peritoneum over the right common iliac artery graft, it was necessary to enter the peritoneal cavity. A stenotic segment of ureter about 1 cm. long immediately over the iliac artery graft was found and resected. An end-to-end anastomosis of ureter was accomplished with 5-0 chromic catgut suture. A long

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Figure 1. Preoperative right ureteral retrograde injection through a bulb catheter that could not be passed beyond an obstruction 12 cm. above the bladder revealed proximal hydro-ureter with incomplete filling of the kidney pelvis.

limbed No. 10 T-tube was placed through a ureterotomy in the dilated proximal ureter through the anastomosis into the normal sized distal ureter. A No. 12 Foley catheter was placed up into the kidney pelvis through a separate ureterotomy in the dilated ureter (Figure 2). The peritoneal cavity was closed to restore the ureter to a retroperitoneal position. A Penrose drain was placed near the anastomosis. The Penrose drain was removed at one week and the T-tube at two weeks. The Foley catheter was removed one month postoperatively after a nephrostogram revealed satisfactory filling of the distal ureter and bladder (Figure 3). The postoperative course was uneventful. The upper abdominal and costovertebral angle pain were relieved. The postoperative excretory urograms revealed prompt function on the right without hydronephrosis (Figure 4).

It has been well established that renal function study by excretory urograms ought to be routine in the preoperative evaluation of candidates for aneurysm repair.¹⁰ This case demonstrates the value of a preoperative study for comparison with postoperative films.

In the case reported stenosis occurred in a ureter placed directly over a nylon arterial graft. It would seem unwise to place ureters in direct contact with

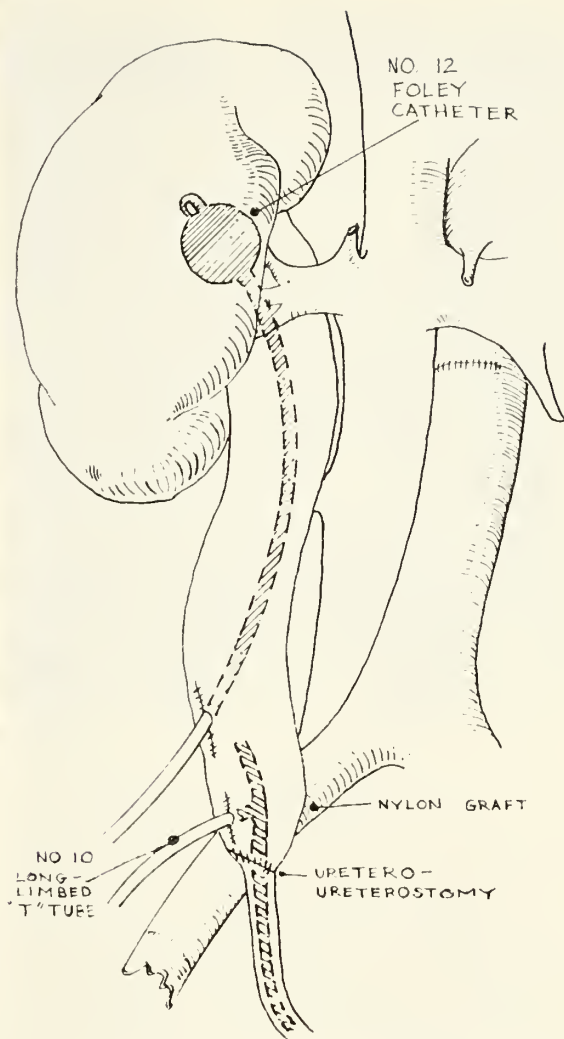


Figure 2. Sketch showing the T-tube splint through the ureteral anastomosis and an intubated ureterotomy into kidney pelvis after resection of ureteral structure.

material known to provoke dense scar tissue.¹¹ Experimental studies are in progress in our laboratory to evaluate the effect on ureters placed adjacent to vascular prosthesis. Operation and later sacrifice of four dogs failed to reproduce a similar lesion, but further studies are being continued. The value of placing ureters posterior to the graft will also be determined.

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Figure 3. Right nephrostogram, one month after resection of ureteral stricture, shows very adequate drainage through the distal ureter into the bladder.



Figure 4. I.V.P. 30-minute film six months after repair of ureteral stricture.

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PHYSICAL FITNESS

A pilot program for physical fitness in one community, according to a special report on physical fitness in *Patterns of Disease*, a monthly Parke, Davis & Company publication for physicians, resulted in a 24 per cent improvement within six weeks in performance among school children, 47 per cent of whom had failed minimum requirements for fitness before the program. The program called for 15 minutes of vigorous daily exercise during school hours and extracurricular calisthenic drills conducted by fathers of students. Enthusiasm aroused by the project has resulted in schools outside the public school system and in nearby communities beginning similar programs of their own, in housewives participating in daily exercises at home, and in businessmen organizing their own physical fitness class.

Pancreas and Parathyroid

*Parathyroid Adenoma in Association With Pancreatic Calcification**

G. REX STONE, M.D., *Houston*

PANCREATIC CALCIFICATION is known to follow pancreatitis and is seen most commonly in pancreatitis associated with alcoholism. However, Martin and Canseco believed the calcium deposits about the nerve terminals of the autonomic system caused the pain and that these deposits in the pancreas led to pancreatic acini atrophy as well as islets of Langerhans insufficiency. A single individual who had autopsy was found to have a parathyroid adenoma as well as pancreatic calculosis. They believed that hypercalcemia led to the calcium deposits within the pancreas.

The following case of primary hyperparathyroidism is reported in detail for two reasons. First, to demonstrate that pancreatic calculosis may be a clue to hyperparathyroidism and, second, to speculate on the mechanism of pancreatic calcification found in hyperparathyroidism.

Case Report

HISTORY: A 32-year-old, single, white man was admitted to the Wichita V.A. Hospital on August 2, 1961, with a tentative diagnosis of a nonfunctioning gallbladder. His chief complaint was pain in the epigastrium which he had had intermittently over the past five years. The pain had become worse the past six months and was often associated with nausea and vomiting. The pain was not relieved by eating or drinking milk and often the milk seemed to aggravate the pain. He had been hospitalized in another institution in March, 1961, for this same complaint. Upper gastrointestinal series and barium enema at that time were reported as negative and, after psychiatric consultation, he was discharged with a diagnosis of passive aggressive personality, passive dependent type; manifested by emotional immaturity, failure to assume adult responsibilities or consistently pursue any occupational goal, and anxiety and somatization in the face of unwarranted responsibility.

Approximately two weeks prior to admission to this hospital, he had had a recurrence of the upper abdominal pain and was seen by his private physician. Oral cholecystograms at that time were interpreted as showing nonvisualization. He was placed on a low

A case of primary hyperparathyroidism associated with pancreatic calcification is reported in detail.

Calcifications within the pancreas seen on x-ray should arouse suspicion of hyperparathyroidism.

A discussion of the possible mechanisms involved in the production of pancreatitis and pancreatic calcification associated with hyperparathyroidism is presented.

fat diet and seemed to improve. He was admitted to this hospital for possible gallbladder surgery.

PAST HISTORY: He had been hospitalized while in the service in 1953 for stomach trouble, but a gastrointestinal series at that time was interpreted as showing gastritis and no ulcer.

He had been increasingly nervous the last three years and complained of insomnia. He smoked one to two packs of cigarettes a day. He used to drink occasionally, both socially and particularly while in the Air Force, but had stopped recently because alcohol seemed to aggravate his abdominal pain.

PHYSICAL EXAMINATION: Admission blood pressure was 114/80 and the pulse was 76. There were no nodules or masses noted in the neck. Some tenderness was elicited to deep palpation along the right costal margin near the epigastrium. The remainder of the physical examination was within normal limits.

HOSPITAL COURSE: The patient was placed on a low fat diet and on August 7, 1961, visualization of the gallbladder was attempted with 12 tablets of Telepaque. This was reported as showing faint visualization with no evidence of any negative or positive shadows of stones. It was noted on these films, however, that there were numerous small and medium-sized round and oval calcifications which appeared to be present in the head of the pancreas (*Figure 1*). A repeat gallbladder study on August 14, 1961, showed normal visualization without stones. Upper gastrointestinal series on August 14, 1961, showed

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Figure 1. K. U. B. film showing calcifications in area of the head of the pancreas and solitary calcification in left kidney.

a duodenal ulcer. Liver function studies were all within normal limits and a serum amylase on August 3, 1961, was 76 Somogyi units.

Because of the pancreatic calculi, a serum phosphorus and calcium were obtained on August 14, 1961, and were reported as 3.0 mg. per cent and 12.2 mg. per cent, respectively. A 24-hour urine calcium was obtained the next day and showed 363 mg. in 1,460 ml. or 24.8 mg. per 100 cc. The patient was placed on a low calcium (150 mg.) diet. Subsequent laboratory studies for serum calcium, serum phosphorus and 24-hour urine excretion of calcium, are tabulated in *Table I*.

X-rays of the skull and hands showed no evidence of hyperparathyroidism. Intravenous pyelogram showed a single renal calculus on the left side. The patient was taken to surgery on August 31, 1961, for exploration of the parathyroid glands.

A 1.5 x 1 x 0.8 cm. smooth, rounded, yellowish-brown mass was found approximately 1 cm. below the right inferior pole of the thyroid gland and connected to it by a vascular pedicle. This was excised and sent to the laboratory for quick section. Further exploration showed three remaining parathyroid glands which appeared grossly normal.

On September 1, 1961, the first postoperative day, the serum calcium dropped to 10.3 mg. per cent and

the serum phosphorus was 2.5 mg. per cent. Subsequent determinations can be noted in *Table I*. Postoperatively, the patient has had no recurrence of the abdominal pain and has been able to eat foods which previously caused epigastric distress.

Comment

Although, in retrospect, this case exhibited other manifestations of hyperparathyroidism, namely urinary tract calculus, duodenal ulcer and psychoneurotic symptoms, the finding of calcification within the pancreas seen on x-ray was the clue that led to the ultimate diagnosis.

A serum amylase done prior to demonstration of the pancreatic calculi was not elevated and there was no record of a serum amylase being done at the prior hospitalization. No further amylase determinations were done after the first was reported normal. Certainly the patient's symptoms of intermittent epigastric pain and the findings of a nonfunctioning gallbladder would be compatible with recurring pancreatitis.

Discussion

Cases of pancreatic calcification or pancreatitis discovered at necropsy in association with primary hyperparathyroidism, have been recorded in the literature for many years. However, Cope and associates were the first to call attention to the more than coincidental association of pancreatitis, with or without calcification, in hyperparathyroidism.

Gross, in a review of the literature, found 12 cases of hyperparathyroidism with pancreatitis. In five of these, pancreatic calcification was found. In an additional three cases, pancreatic calcification without histological pancreatitis was associated with parathyroid adenoma.

TABLE I

Date	Serum Calcium mg. Per Cent	Serum Phosphorus mg. Per Cent	24-hour Urinary Calcium Excretion mgs.	Sulkowitch
8-14-61	12.2	3.0		
8-15-61			363	3+
8-21-61	11.3	2.1		
8-22-61	11.2	3.0	460	
8-23-61	11.3	2.6	467	
8-31-61	Excision of parathyroid adenoma			
9- 1-61	10.3	2.5		3+
9- 3-61	9.3	3.9		1+
9- 5-61	9.1	4.0		1+
9- 7-61	9.9	3.5		Negative

Coffey found ten patients with pancreatitis and hyperparathyroidism, and pancreatic calcification was present in seven.

The common hypothesis that the associated pancreatitis proceeds from intraductal lithiasis related to the hypercalcemia, would not seem to explain adequately the sequence of events and most certainly does not explain those cases of pancreatitis without calcification seen in association with hyperparathyroidism. The postoperative response to removal of a functioning parathyroid adenoma is too prompt and too complete to suggest a relationship. This discrepancy has been suggested previously by Mixter, et al. Cope has pointed out that duct stones tend to disappear and the pancreatitis does not recur after ablation of the overactive parathyroid glands.

It is a known fact that, experimentally, excessive parathyroid hormone can cause focal pancreatic necrosis. Why this focal necrosis occurs has not been explained. The concentration of calcium in human pancreatic juice normally approximates the concentration of diffusible ionic calcium in plasma. In hyperparathyroidism the ionic fraction of the total serum calcium is elevated. One might assume, therefore, that the ionic calcium of the pancreatic juice would also increase. Such a rise in ionic calcium might effect chemical changes within the pancreas which could produce a pancreatitis with or without calcification. Calcium chloride in sufficient concentration has been shown to activate trypsinogen to trypsin. Cer-

tainly a premature activation of trypsinogen within the pancreas would likely cause areas of necrosis and pancreatitis.

Tissue damage is thought to favor calcific deposits; therefore, the hypercalcemia of hyperparathyroidism may lead to calcific deposits in the pancreas, particularly in the ductal system where the pancreatic secretions are highly alkaline, as well as in the areas of focal necrosis in the pancreatic parenchyma.

It is obvious that the exact mechanism of pancreatitis, with or without calcification, in association with hyperparathyroidism, is yet to be defined. In the case reported, the possibility of pancreatic calcification occurring in areas of previous focal necrosis and thereby being the result of a recurrent pancreatitis rather than the cause, would seem to be a logical conclusion.

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Is It Deafness?

Screening Test of Hearing for Infants

JUNE B. MILLER, Ed.D., *Kansas City, Kansas, and*

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THE TESTING OF HEARING of small children has been a difficult task for the general practitioner, pediatrician, otologist, and audiologist. Conventional audiometry for the child six years of age and older can certainly be accomplished if a little time is taken to work out a testing procedure. For those under six years special techniques must be used.

Gesell¹ in 1940 remarks that deafness is difficult to rule out in the 12 to 18 month age range. The extent to which the child shows comprehension of spoken words should be investigated not only in the test situation and others that may be improvised, but carefully and concretely in the interview.

In 1941, Gesell² states, "Diagnosis in early infancy is indeed difficult because there are no practical, objective methods of measuring auditory acuity in infancy, and because the infant apparently gets along so well without hearing. Many of the cases which elude early diagnosis are selectively deaf because auditory mechanisms may receive only parts of sound patterns. They live not in a world of silence but of smudged sounds." He lists signs suggestive of deafness in infants and young children, listing them in certain categories, such as:

- (1) Hearing and Comprehension of Speech
 - General indifference to sound.
 - Lack of response to spoken word.
 - Response to noises as opposed to voice.
- (2) Vocalizations and Sound
 - Monotonal quality.
 - Indistinct.
 - Lessened laughter.
 - Meager experimental sound play and squealing.
 - Vocal play for vibratory sensation.
 - Head banging, foot stamping for vibratory sensation.
 - Yelling, screeching to express pleasure, annoyance or need.

* From the Department of Hearing and Speech and Children's Rehabilitation Unit, University of Kansas Medical Center. Presented at the American Speech and Hearing Association National Convention, Chicago, Illinois, November 8, 1961.

Dr. de Schweinitz was an Assistant Professor of Pediatrics at the University of Kansas Medical Center at the time this paper was prepared.

The present study was initiated to determine the effectiveness with which certain foreign and native sounds may be used for screening the hearing of infants of midwest United States and to analyze the responses which were elicited by these various stimuli. It was found that stimuli familiar to the environment of the child elicited the quickest responses, while many English sounds were ignored.

Six classes of response were observed. They were: localization, fast, medium, or slow type; eye movements (opening, moving, searching, closing, or squinting); leaning toward sound; cessation of movement; increase of activity; and a combination of the above with a variety of other responses.

Test equipment, stimuli, and responses are discussed. Normal infants between six to 10 months of age localize sounds at a distance of three feet. All of the four and a half to six month old children gave eye movements or localized slowly to the majority of sounds presented. The children below four and a half months did not respond 50 per cent of the time.

- (3) Visual Attention and Reciprocal Comprehension
 - Augmented visual vigilance and attentiveness.
 - Alertness to gesture and movement.
 - Marked imitativeness in play.
 - Vehemence of gestures.
- (4) Social Rapport and Adaptiveness
 - Most of these signs refer to children older than eight months.

However, Dr. Gesell states that ideally the diagnosis of congenital deafness should be made about the age of six months.

The Ewings³ reported in 1947 that among children in war nurseries it seemed that active response to

sound developed in four fairly well-marked stages. These were:

- (1) Birth to three months, reflex and automatic reaction to any unexpected and loud sound;
- (2) Three to 12 months, growth of capacity to discriminate between different forms of sound, also acquisition of skill in locating the source;
- (3) Twelve months to three years, growth of power to comprehend speech and to attend to a wide range of other sounds that, to the individual child, are meaningful;
- (4) Three to five years, children can be taught to cooperate actively in tests and are able to carry on a conversation comfortably while playing.

In 1953, Richmond, Grossman, and Lustman reported on a hearing test for newborn infants. They comment that even in utero the fetus will react with demonstrable movements to sound stimulation after the 31st week of gestation. The authors tested 46 infants, 39 fullterm, aged one-half hour to eight days, and seven premature, aged one to 15 days. The children were tested in (1) light sleep, (2) deep sleep, (3) awake, (4) active nursing, (5) post stimulation. The test was striking a bell 33 cm. from the head. The bell had intensity of 113 db. The usual response was palpebral or startle reflex. All children gave response. This is a rather loud stimulus so it is not so selective as softer sounds. The authors state that it is not statistically probable that a congenitally deaf child would be found in so small a study.

One must remember that 113 db. of intensity may be heard by even deaf children.

Griffith of England,⁵ in 1954, in her *Mental Development Scale*, suggests that children at four months of age will turn to sound, will search for sound with eyes at three months, and can be quieted by voice at one month.

According to the Ewings,⁶ in 1958, if hearing is normal a child pays attention to quiet sounds more quickly than to loud sound. A meaningful, or personalized, sound wins a quicker response than an unfamiliar or impersonalized sound. For example, quiet voice, or the sound of a spoon being stirred in a cup, or being gently rubbed against a feeding bottle, or the rattle of a toy with which the child is familiar will receive response more quickly than a sound not in the child's environment. The ability to locate sound automatically, as a rule, has developed by the seventh month, provided that the sound stimulus offered is of interest to the child and is made within a certain distance and on a horizontal level with his ears. However, and this is most important, if the child does not respond this does not necessarily mean that he does not hear.

In September, 1959, Hardy, Dougherty, and Hardy

of Johns Hopkins reported that a Moro response, an eye response, or head turn may be seen in children from three to 14 weeks with the eye response being the greatest. Children from 15 to 30 weeks are more likely to give a head turn as a means of response.

Chun, Pawsat and Forster at Wisconsin reported in 1960 on a study of auditory localization ability of normal infants. They studied 26 infants ranging in age from two to 49 weeks. Each infant was tested on his back in a crib with a special frame of horizontal and vertical bars over the crib and five buzzers of identical pitch and intensity placed at different places on these bars. The ability to localize sound was considered present only if the head and eyes of the infant turned toward the source of sound. All of the infants over 26 weeks of age (15 infants) showed a definite ability to localize sound in at least one of the positions tested.

In a previous study reported by de Schweinitz, Miller, and Miller, it was found that there was a delay in the diagnosis of deafness. That is, after the first visit to a physician because of suspected deafness, in a study of 48 children the diagnosis was made within three months in 22 children, in three other children within six months, in five children within nine months, in five others within 12 months, and in seven children not until 12 to 24 months. It was felt that if a screening procedure could be devised to be used by the family physician, pediatrician, and otologist routinely in physical examinations, the delays in diagnosis might be prevented.

In order to test the hearing of very young children, it is necessary to determine how children whose physical and mental growth appear to be normal react to sounds.

Since the tests devised by the Ewings are also used by Griffith and the Johns Hopkins group, and since the equipment used was all of English origin, we felt that there was a need to develop a test with sounds that would be familiar to children in the midwest and with equipment that could be purchased in the physician's locale.

Experimental Design

A pilot study was initiated to determine some sounds that would interest young children. Toys and noisemakers similar to those used by the Ewings were purchased at a neighborhood variety store. In addition, some of the English noisemakers were used also. They were: Mickey Mouse, rubber rat, Kleenex, English tissue, American crepe paper, a bone china cup, a plastic cup, a metal spoon, a plastic spoon, a glass nursing bottle, a musical rattle, small and medium size rattles, plastic bibs, ssssss, la, la, la, la, and the kissing sound. The stimuli were first presented randomly to subjects in a relatively quiet room at

a distance of 108 inches and at a 45 degree angle to the rear of each ear.

The subjects were 10 children ranging in age from seven months to 12 months with a mean age of 10 months. They were the children of medical students and were presumed to have had normal hearing. There was no history of any complications during the prenatal, natal, or postnatal period.

The subjects localized well to stimuli familiar to their environment. These were rustling of Kleenex, rattle of cap on nursing bottle, Mickey Mouse squeak, rubber rat squeakers, rattle of strips of crepe paper, rattle of small and medium size rattles, scraping of metal spoon in a plastic cup, and s or hissing sound and the sucking or kissing sound.

The English children responded to the scraping of a metal spoon on a bone china cup. This experimental group did not. They did respond, however, to a metal spoon scraped on a plastic cup. This sound, of course, has different frequency components from bone china. The English used a tissue paper that is not readily available in this country. When Kleenex was presented at a distance of 24 to 48 inches the experimental group responded. The Ewings found the scraping of a spoon on the side of a nursing bottle to evoke consistent responses. Again our experimental group did not respond to the English stimulus, but instead responded to the rattling of the plastic cap on the glass nursing bottle.

As a next step on our project, the kinds of responses which could be elicited consistently from various age groups were investigated. A small room typical of a doctor's office was chosen in the well baby clinic in the University of Kansas Medical Center.

In order to obtain a sample of children of varying ages, hospital charts of children attending well baby clinic were examined. Only children who had been delivered at term and had a birth weight of five and a half pounds or greater were considered. Mothers were questioned regarding difficulties during pregnancy or delivery and with respect to postnatal health of either mother or child. If difficulty was found, the child was excluded from the experimental group. A total of 36 children between the ages of 18 days and nine months were the subjects of the screening tests.

The 10 stimulus sounds used were those determined to have meaning and to have elicited responses in the pilot group. The child was held in a sitting position on the mother's lap facing the examiner. First, the sounds were presented at the subject's ear level, and at an angle of 45° to the rear to prevent observation of the stimulus presentation. Next the stimulus was presented visually. The noise level of the room during the test period did not exceed 55 db. reference .0002

dyne/cm² on the C scale of a General Radio Sound Level Meter. No stimuli presented increased the noise above this 55 db. level.

Six classes of responses were observed and recorded. Localizations which were quick, medium, or slow were easy to see. Observations were also made of some type of eye movement, that is, opening, moving, searching, closing, or squinting. Some children leaned toward the sound. In others there was a cessation of movement or an increase of activity. One child responded by spreading his toes each time he heard the sound. The children six to 10 months of age all localized the sound at a distance of three feet. All of the four and a half to six month old children responded with eye movements or localized to the majority of sounds presented, that is, they responded over 75 per cent of the time. However, the children below four and a half months responded less than 50 per cent of the time, and, therefore, it was felt that these results did not give an indication of a child's acuity of hearing. This group showed the greatest variety of response.

It is important, and should be emphasized, that if the child does not respond to sound this does not necessarily mean that he is deaf. It should indicate that a careful follow-up study should be made on subsequent visits to the physician or clinic. The lack of response to sound, or deviation in type of responses, may mean that there are other factors such as immaturity, retardation, environmental deprivation, cerebral palsy, as well as hearing loss to be considered.

Besides the children tested in the pilot studies, the investigators have been asked to see a number of other children who have had some symptoms of physical handicaps with hearing acuity being questioned. These children ranged in age between six months and three years. It is our clinical judgment that many of these children did respond to very soft sounds, but the type of responses was different from that given by children who were thought to be normal. In other words, a child of 12 to 15 months of age might not localize sound as a normal child but would demonstrate that he heard the sound by squinting, or moving the eyes toward the sound stimuli, thus indicating an immature response. Of this clinical group of children only two were found who demonstrated true organic hearing loss.

Further refinements of the procedure are being carried out so that this screening of hearing or identification audiometry can be done in two or three minutes in the office of the physician or in a clinic. Identification audiometry of the infant should be incorporated in every routine examination or evaluation. It is of tremendous importance that children with any handicapping condition, including hearing

(Continued on page 530)



Medical HISTORY

A Method of Investigation— Sir James MacKenzie (1853-1925)

DONALD F. WILLIAMS, M.D., *Vandenberg Air Force Base, California**

THE PURPOSE OF this paper is not to merely add another biographical sketch to the already abundant list of subject matter on this famous clinician. My objective, however, is to succinctly present and attempt to humbly interpret the principles of clinical investigation which Sir James MacKenzie faithfully practiced and sought fervently to teach during his life.

MacKenzie was in a very real sense the first modern clinical investigator to apply the methods of science at the bedside. Many medical men before him had worked fruitfully with animals in the laboratories, and a number had made important physiologic observations on human subjects. He, however, was the first physician to dedicate his life wholeheartedly to clinical investigation.

MacKenzie occupied a very enviable position in London at the turn of the century. He was a consultant on Harley Street; he had gathered a group of disciples about him called the "MacKenzie School of Neocardiology,"¹ who were rapidly advancing medical knowledge of the heart; he had received many honorary degrees; and finally, he had been knighted. Then, one night in the year of 1918, when he was 65 years of age, this Fellow of the Royal Society, this Fellow of the Royal College of Physicians to the London Hospital left his consulting room on Harley Street and a practice worth more than 8,000 pounds a year to become the Consulting Physician to St. Andrews Cottage Hospital. Why had MacKenzie who was perhaps the most famous cardiologist of his time forsaken his "calling" to take up the life of a general practitioner in a small Scottish town?

In order to adequately answer this question the circumstances of MacKenzie's early life deserve a brief recounting because of the shape they gave his personality.¹⁻¹¹

James MacKenzie was born in the town of Scone near Perth, Scotland, on a farm held by his forebears for more than a century. Energy and thrift were thus of necessity family features; and MacKenzie, no

The story of the clinical research which was initiated by this giant of the medical profession; an appeal for true clinical evaluation of our patients, which can bear fruits obtainable in no other way.

doubt, acquired much of the perseverance in adversity, which was to distinguish him later, from these early years. He was a pupil at the celebrated Perth Academy, an institution so old it was well-known in 1153.¹ However, MacKenzie found that the schools in Scotland then, as many schools today, attached undue importance to the feats of memory and offered little opportunity for the exercising of one's powers of reasoning and understanding. Therefore, dissatisfied, MacKenzie left school under his own volition at 15 years of age to become an apprentice in a chemist's shop. This choice of work did not appeal to him; however, it did serve to open his career. From the constant association with the physicians who came to the chemist's shop to have their orders compounded, MacKenzie's interests were turned to medicine. Subsequently, at the age of 21 he enrolled at the University of Edinburgh Medical School (some four years older than the majority of his classmates). Be-

* This thesis was written while Dr. Williams was a fourth year medical student at the University of Kansas School of Medicine. A former intern and assistant resident at Johns Hopkins hospital, Baltimore, Maryland, he is now in the Department of Medicine, Vandenberg Air Force Base hospital.

cause of the relative paucity of his power of memory as compared to his power to reason, MacKenzie found himself again confronted with the problem of passing examinations. He considered himself a "dunce" and exhibited a decided sense of inferiority. However, his merits must have been partially realized at Edinburgh because he received several medals for superior clinical work. Years later with his own experiences in mind, MacKenzie wrote:¹ "There are two very distinct qualities of the human mind: memory, and the power of reasoning. The earliest to be developed is that of memorizing, and this can be cultivated with great ease. The power of reasoning is quite different, although, no doubt, memory takes a part.

"When we look at a great number of students, we discover that this power of memory is greatly developed in a few, and that all our educational methods are devoted to its cultivation. Examinations are specially contrived for the purpose of discriminating those with the best memories and to them all the honours and prizes are given.

"The individuals who, on the contrary, possess more of the power of reasoning than their fellows, receive no consideration. There are minds which have a difficulty in remembering isolated facts, but if these facts are related in some consecutive manner, they can not only remember them, but also appreciate their bearing on one another. But this type of mind is slow in acquiring knowledge, and in our present-day methods of education less and less encouragement is given to this type of student. His peculiar powers are never developed, and their presence is never suspected."

After serving a year as a resident physician at the Edinburgh Royal Infirmary, he was induced to become the assistant of two general practitioners in the Lancashire town of Burnley. It was at Burnley, during his 28 years of general practice, that he laid the foundation of his work. Dissatisfied with his apparent inability to pick out important signs of danger from a wide assortment of symptoms, he turned to the textbooks. However, he discovered that the information which he sought was not known to the "authorities."¹ In order to solve his problems, he began to make systematic observations and records on a great variety of surgical and medical conditions. He reasoned that if he followed his patients long enough he would be able to correlate their symptoms and signs with their prognosis, as it was with the ultimate effects of disease that the patient was concerned. MacKenzie studied each case as if he had never seen one of the same kind previously. In order to thoroughly acquaint himself with the myriad of signs and symptoms that were presented to him, he was obliged to restrict himself to disorders of the cardiovascular system. In order to facilitate his examinations, he used several different instruments, many of his own design. Finally, he in-

vented the polygraph which could make simultaneous records of arterial, cardiac, and venous energies.⁹ An instrument such as the polygraph was a hallmark of his age, and many laurels were heaped upon MacKenzie for his machine but not for the information which he was seeking with it. However, eventually this constantly sought information did come to MacKenzie and with it he produced a revolution in cardiology. The significance of sinus arrhythmia, auricular asystole, pulses alternans, and auricular fibrillation were ultimately gleaned from the work of this busy general practitioner from Burnley.

In attempting to appreciate at its true value the work and character of this remarkable man, his circumstances must not be forgotten. He became, while engaged in the busy routine of a large practice, an ardent and wholly self-trained investigator of outstanding merit. The hours for research were literally snatched from the rush of his general work during his busiest years, and it is during this period that the greater part of his solid work of observation belongs.

However, MacKenzie was never publicly recognized until 1902 when he published *The Study of the Pulse*. Following this, men of science from all over the world came to visit this general practitioner with the remarkable powers of observation. Ultimately, he was attracted to leave Burnley and establish in London where he could more easily influence the men of his generation with his method of investigation. The "giants"¹¹ were loath to take this foreigner into their den, and it was not until he published his *Diseases of the Heart* in 1908 that his services were in great demand.¹² This great book fell among the professors like a live bomb. It contained not merely a good account of various diseases of the heart known to medical science, with each disease illustrated by dozens of tracings, and each analyzed with the most amazing care, but its chief title to fame was its immediate practical utility to the general practitioner.

It was about this time that Professor Waller called upon him on Harley Street and demonstrated Einthoven's string galvanometer. MacKenzie hailed the discovery as a most interesting confirmation of the work, which he had already accomplished with his polygraph. He realized, however, that he did not have the time, and was not at the right age to take up the clinical application of this electrical instrument, so he turned it over to his disciple, Sir Thomas Lewis, who has since attained international fame through his work in heart disease, particularly as interpreted by the electrocardiograph. MacKenzie generously applauded Lewis as a man of science, but deplored the advent of another "deus ex machina."¹⁴ One can imagine Sir James shaking his head over this machine and thinking what a sad state of affairs had come about when it was necessary to make all this fuss over the

examination of the heart. The prime factor to him was "is there heart failure?" and this question he thought he could answer without any apparatus at all, simply through the application of physical sense with which he was endowed.

MacKenzie's practice as a consultant grew rapidly on Harley Street and many honors were given him during the 15 years he resided in London. It was during this period of his life that he wrote the now famous book, *Symptoms and Their Interpretation*, in an attempt to influence the world with his outlook on medical progress.⁵ When it became apparent that this latter work did not have the power on medical thought that his *Diseases of the Heart* had, MacKenzie decided to leave London for the Scottish town of St. Andrews to prove and test his method.

An understanding of what caused this great consultant to desert his practice in London and return to general practice seems to lie in the writings of MacKenzie during the last ten years of his life. Despite his undoubted success in London, MacKenzie remained unsatisfied with his work. He became increasingly aware that fame had come to him for what he considered his less important work; namely, his technical discoveries. He, almost alone at this time, penetrated beyond the usefulness of these aids to see that they did not, that nothing ever could, replace the need for careful study of the individual patient as a whole.

Many qualified young men who were intimately acquainted with MacKenzie and were trained in the laboratory failed to grasp his principle of investigation of disease. Realizing that the conclusions at which he had arrived took 30 years of observation and study as a general practitioner, he sought out the general practitioner for the research at St. Andrews because they had had the opportunity of seeing disease in all stages; *i.e.*, they understood his quest. He chose the town of St. Andrews because it was a relatively small town with a stable population so that patients could be easily followed over many years. It had, in addition, the facilities of a university medical school. He engaged the services of a chemist, bacteriologist, anatomist and an assistant professor of logic from the University of St. Andrews. This was, as far as can be ascertained, the first time that the logician had been called in to help in the work of a medical institute.³ All patients were instructed to attend the Institute at regularly appointed hours. Each doctor had a separate room; but, all the facilities of the Institute were at his disposal. This was done so as to establish the fact that the general practitioner, given the facilities, would become a potent factor in research by studying the early manifestations of disease.⁹

Sir James MacKenzie pointed out in his opening address at the St. Andrews Institute that the methods

useful in physiology, chemistry, and bacteriology were not all-sufficient for the investigation of the wider problems of clinical medicine. This proposition probably seemed like heresy to men who had been brought up in the tradition that the highest form of research was that modeled on laboratory lines, with instruments of precision to confirm or correct the impressions and the erudite senses of the old-time bedside observer.

He postulated that the main aim of medicine should be the prevention and cure of disease. As disease was only recognized by the symptoms it produced, a knowledge of symptoms was a necessary preliminary to an intelligent investigation of disease. This knowledge of symptoms was necessary not only to the diagnosis of a patient's complaint but a prognosis and a rational treatment.³

MacKenzie felt that a knowledge of the early stages before structural damage had been done was essential. The correct assessment of symptoms, an accurate understanding of the mechanism of their production, and their bearing on the future health of the patient, are very difficult problems, and it was perhaps only natural that the study of medicine had chiefly been devoted to the late effects of disease as shown by physical signs in the wards and morbid changes in the post-mortem room. He felt that the failure of medicine to detect the early stages of disease was due to the fact that the patient's sensations had never been adequately investigated. Inasmuch as the earliest symptoms are often merely a consciousness that something is amiss or that the sense of well-being is absent, such a complaint in most instances does not, unless physical signs are present, excite any great interest, largely because it is so difficult to elucidate in the inquiry. Accordingly, MacKenzie thought that in order to correct this, the most experienced physicians, with all the most efficient means at their disposal, should logically see out-patients in the early stage of symptoms when further changes could be arrested; and the younger members of the hospital staff should look after the advanced cases in the state of "physical signs" in the wards.¹⁴ He warned, however, that it was only after long training that the art of asking the appropriate questions is attained, and that much experience is necessary to interpret the answers correctly. Furthermore, MacKenzie urged that he was not describing any new innovation as depicted in his writings:¹³ "When I place before you the principles on which our scheme of research is based you will see nothing original in them. Indeed, you will recognize them as those which guided the research of the great physicians and surgeons who have done so much in bringing to light the knowledge of disease as it is recognized to-day. You will find, for instance, that these principles were used by the greatest of all clin-

ical investigators John Hunter. He made himself familiar with the symptoms of the diseased condition, and then by experiment, sought the solution. He not only did not restrict himself to the bedside or the laboratory, but he used both, being trained first as a clinical observer. Moreover, he did not restrict himself to a specialty; though called a surgeon, he was in reality a general practitioner."

MacKenzie taught that the bulk of most instructive phenomena produced by disease were incapable of detection by mechanical aids. Many valuable signs were only revealed by sensations experienced by the patient or are perceptible to "the trained eye, trained ear, or the trained finger."¹⁵ He succinctly outlined the principles which he considered paramount in studying disease. First, one must clearly differentiate each symptom from others it might resemble. Next, one must discover the mechanism by which each symptom was produced. And finally, one must accurately assess the value of the symptom, so far as it has a bearing on the patient's future. MacKenzie thought that by following this simple set of principles, one could accurately evaluate any symptom presented to him and distinctly inform his patient of the prognostic significance of the symptom.

MacKenzie commented several times that there were "many matters in medicine seemingly so simple that it was taken for granted that they are beyond further discussion or investigation."¹⁶ Of these simple matters, the symptoms common to ill-health were the most prominent. Ever since medicine had been seriously studied, symptoms had received attention, until it was felt that the symptoms revealed by the doctor's unaided senses were so well understood that the information to be gathered from them was exhausted, and further study was unnecessary. Hence, in order to perpetuate the progress of medicine, men were turning from the patient to the laboratory.

He emphasized that medicine could be made more simple in its practice, and at the same time more efficient. It had become extremely complex. Specialism had reached an extreme degree, and in the use of laboratory methods there was a risk that the patient would be ignored by the physician, who thus would lose the opportunity of gaining much valuable information by investigating the patient's symptoms. He advocated for successful research a thorough training in symptoms, and personal contact with the patient was the proper course rather than seclusion in a laboratory. In order to show that this simplification of medicine was possible, Sir James MacKenzie applied it to one organ—the heart—and insisted that what had been done in this direction could also be done in the case of other organs, if the same line of investigation were pursued.¹⁷

MacKenzie postulated that only when one basic

defect in medicine had been remedied would we have a better knowledge of symptoms. He saw that the general practitioners were the people who were brought into contact with the illnesses which impair the health of the community. Of the myriad of symptoms which were presented to these men, only 5 to 10 per cent were being diagnosed with any degree of accuracy.¹⁵ He taught that the methods of medicine determine medical education and are reciprocally influenced by it. The vast majority of students ultimately would become general practitioners, but their teachers had not been through the mill of general practice, and accordingly much of the student's time was wasted in learning details that would not be of any use to him in future practice. Anatomy and physiology were taught by specialists, and often became divorced from practical application.¹⁸ The laboratory and hospital worker had practically acquired the power to guide and regulate the teaching and investigation of the whole sphere of medicine, totally unaware that great fields of medicine essential to progress were outside their spheres; *i.e.*, in general practice. By the time the disease found its way to the laboratories and hospital wards, many of the early symptoms of the patient had vanished and in their place had come a physical sign. It was with this physical sign that the teachers of medicine dealt. Students were not taught to be aware of the early sensations or symptoms of disease but to only be aware of its presence if it produced a telltale sign. Hence, many were unprepared to undertake general practice where patients presented themselves with early symptoms or sensations wholly devoid of the time-honored "sign of disease."¹⁹

MacKenzie saw that the experience of most teachers was mainly restricted to the laboratory and hospital. To get an insight into the course of disease it had to be watched from its onset, during all the vicissitudes of life, to the end. Many of the teacher's cases and most of his experiences were limited to the latter stages of disease. Therefore, in his teaching and writings one would search in vain for a hint as to the onset and progress of the condition. "It was like reading the last volume of a three-volume novel, the first two volumes being lost."²⁰

He thought that we are all the creatures of circumstance, and our ideas are molded by our experiences. Those employed in the study of medicine looked at the subject in the light of their own experiences. Since the subject is so large, one individual can experience but a small part so there is no one capable of seeing it as a whole. The result was that medicine had to be studied in sections, and this led to specialization. He felt that the authorities who were guiding and directing the progress of medicine were therefore men with but a limited experi-

ence, and this led to a limited outlook. The following example serves to point up this fact. MacKenzie told the incident concerning a learned physician who was being shown over the Institute one day when he came to a general practitioner engaged in his work.

The physician looked at the notes and said, "Ah, applying hospital methods to general practice?" "No," replied MacKenzie, "we are training ourselves how to examine patients. We find that students are never trained to examine patients so as to fit them for general practice." "Oh, nonsense," said the physician; "they are well enough trained." "Well," replied MacKenzie, "you have been teaching students at least twenty years?" "Yes," he said. Then MacKenzie asked him: "Can you tell me the symptom of which the majority of people complain when they fall sick?" After much consideration he said, "No." MacKenzie said, "The most common complaint is exhaustion. Can you tell me what is exhaustion?" He again, after a little consideration, said "No." "So," MacKenzie said, "here is a symptom of the most common kind, a symptom which, when understood, throws a flood of light upon the patient's state, and yet you, who reckon to be able to teach students how to examine patients have never given it the slightest consideration."

MacKenzie thought that in every medical school there should be a teacher with a broad outlook on the field of disease, so that he would be able to give the students a proper perspective of the different aspects of medicine. He was chagrined that this place had been occupied mainly by the "laboratory workers" and felt that they had ultimately reached the place where no progress was being made. In order to circumvent this situation he advocated that a young man interested in a teaching position should be encouraged to enter general practice where he would meet the early stages of disease and thus be better equipped not only to teach but also to solve the problems he would meet in the hospital and research situation.

MacKenzie constantly taught that the principles which should underlie every clinical investigation are: (1) to find out the mechanism by which each sign is produced, and (2) the effects which the cause of the sign has on the individual's future life. He was not merely content that a particular entity had been described or recognized by the medical profession. Until a strenuous attempt had been made to understand the causation and significance of the phenomenon, progress in clinical medicine would be greatly hampered. MacKenzie did not envision that the old school, steeped in tradition, would be able to adopt this new concept. His hope was that the younger men, who were not burdened down with the yokes of tradition and instrumentation for the sake

of instrumentation, would catch hold. A classic bit of advice is evident in the following few lines as taken from one of the many writings of MacKenzie on this subject:²⁴ "Never teach things which are given you only on authority. Before you teach your students a simple fact, verify it from your personal experiences, or search in the writings of your authorities for their reasons in making a statement. Weigh these reasons carefully, and let not the weight of the reputation of the authority affect the balance, but be guided dispassionately by the facts he produces in evidence."

Thus, we see in MacKenzie an individual whose intellectual curiosity was throttled early in life because he "had not a memorizing mind," but because of his masterful power to reason and understand he overthrew these early shackles of inferiority to become one of the most renowned clinicians of his time. MacKenzie saw that medicine's method of approach to disease had virtually reached a stand-still because it lacked a basic approach to the patient. He thought that medicine should turn from the laboratory and "halls of physical signs" back to the patient and an investigation of his symptoms or sensations. He believed that specialization had reached the point where the patient was being exploited for the sake of instrumentation and specialization. MacKenzie felt that only when his method of investigation had been adopted would the progress of medicine surge on.

Many of the matters which concerned MacKenzie about the trends in medicine at the turn of the century are, more or less, true today. We are also too much enthralled with the myriad of laboratory methods available to us; *i.e.*, "deus ex machina." We are much too concerned with the methods of eliciting the exciting "physical signs of disease." We have reached a plane of specialization today which dissects not only the patient but also his symptoms. Perhaps, we should pause and take heed of the sage method of investigation which MacKenzie clearly presented to us; namely, a thorough and honest study of the patient as a whole; a study of his symptoms, his feelings, and his sensations with less emphasis on the late "physical signs of disease" and the rapidly outmoded laboratory methods. Perhaps, with the application of this approach we can attain the results which MacKenzie sought with his method of clinical investigation—a thorough knowledge of symptoms and their prognostic significance to the patient.

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RESPIRATORY PHYSIOLOGY FILM

The National Foundation—March of Dimes has announced the availability of a new teaching film, "Chemical Balance Through Respiration."

The film was prepared in cooperation with James L. Wilson, M.D. and his associates in the Department of Pediatrics at The University of Michigan School of Medicine. It illustrates some basic facts regarding respiratory physiology, with particular emphasis on gas exchange between lungs and tissue and the maintenance of a stable hydrogen ion concentration through breathing and the buffering action of the blood. The clinical conditions shown are respiratory acidosis, metabolic acidosis, respiratory alkalosis, metabolic alkalosis and uneven ventilation.

The film, which is 16mm, color and runs for 20 minutes, may be obtained on a free-loan basis, except for return postage and insurance, by writing the Department of Professional Education. Four weeks' advance booking is required.

During the 1958 fiscal year, there were about 24 million impairments among the civilian residents in the U. S.—U. S. *National Health Survey*

Is It Deafness?

(Continued from page 524)

loss, be recognized early and the appropriate type of habilitation program be initiated.

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Carcinoid Syndrome

Edited by TOMAS MARAMBA, JR., M.D.*

Dr. Kittle (Moderator): The case to be presented today is an extremely interesting one because in addition to the problem presented by the tumor and its metastases, it represents one of the few types of tumors which produce systemic effects by their biochemical products. Dr. Sheldon, would you please present the case?

Dr. Sheldon (Intern): The patient is a 65-year-old white man who came to the University of Kansas Medical Center with the chief complaint of weakness. Six years prior to admission he began to have episodes of sweating, nausea, dyspnea, diarrhea and pain and bloating of the abdomen lasting for four to five days, occurring twice a year. In February, 1961, he developed intestinal obstruction following one such episode. He was operated on and a segment of the small bowel near the cecum was removed. This was diagnosed as a carcinoid tumor. He recovered from this operation and although he was quite weak his symptoms subsided. In December, 1961, he began to have episodes of weakness, nausea, dizziness, flushing of the skin of face, sweating, diarrhea, elevation of blood pressure, headache, nervousness, blurring of vision and pain in the right lower quadrant of the abdomen.

Past history and family history are not contributory.

On physical examination he had a blood pressure of 110/70 mm. Hg. and a pulse rate of 72 per minute. There was tenderness and a questionable mass in the right lower abdominal quadrant.

Laboratory examinations showed a positive qualitative 5-Hydroxyindole acetic acid (5-HIAA) determination in the urine. Urinalysis and repeated hemo-

grams were normal except for slight anemia and thrombocytopenia which developed postoperatively. Blood urea nitrogen, blood sugar, serum electrolytes, serum iron, serum proteins, lipids and liver function tests (including those performed after the operation) were normal. The electrocardiogram was interpreted as being compatible with myocardial ischemia.

In the hospital he had some flushing, sweating, malaise and nausea. He was treated initially with Chlorpromazine which resulted in relief of symptoms. This is interesting because Chlorpromazine inhibits the colorimetric reaction in the determination of 5-HIAA resulting in a spuriously low value.¹ However, although it does not block serotonin production, there is evidence that it may interfere with the peripheral action of serotonin.¹ Symptomatic improvement has been reported in patients with the carcinoid syndrome with the administration of Chlorpromazine.^{1, 2, 3}

He was transferred to the surgical service and an exploratory laparotomy was done. The mass that was noted on physical examination consisted of fibrous adhesions of the omentum. Carcinoid tumor was found in the right and left lobes of the liver. The left lobe was much more involved and this lobe was resected. There were no other signs of metastasis. He had an uneventful postoperative course. He had two mild episodes of flushing while he was on the surgical service.

On return to the medical service, he was given Alpha-methyl DOPA (Aldomet) which is a specific competitive inhibitor of aromatic amino acid decarboxylation.⁴ It inhibits the decarboxylation of 5-hydroxytryptophan to 5-hydroxytryptamine or serotonin. Clinically, it has been used in the treatment of hypertension since it also inhibits norepinephrine synthesis.⁵ This patient was placed on Aldomet exclusively for 5 or 6 days and subsequently Chlorpromazine was

* Dr. Maramba is a resident-fellow in pathology, supported in part by U.S.P.H.S. grant 2G-125.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society.

added. His symptoms were relieved considerably, more so with the use of Chlorpromazine. A course of nitrogen mustard was administered just before he was discharged.

Quantitative 24-hour urinary 5-HIAA determinations were performed. On admission, it was 110 mg. per 24 hours. After surgery the values rose to 160 mg. per 24 hours, 141 mg. per 24 hours, and 225 mg. per 24 hours just before his discharge. Symptomatically, the patient felt better and had relief of his symptoms, even though the serotonin level appeared to be rising. This may be a tissue release phenomenon rather than an indication of growth of the tumor.

He was readmitted three months later for clinical evaluation and trial with several serotonin antagonists. He was having occasional flushing episodes and a 24-hour urinary 5-HIAA determination revealed 99 mg. per 24 hours. On administration of Bulbocapnine he developed nausea, diarrhea and drowsiness. He responded a little better to Cyproheptadine. The excretion of 5-HIAA rose to 183.3 mg. per 24 hours. Cyproheptadine was discontinued when tremor developed. After a course of nitrogen mustard, the patient was discharged on Chlorpromazine and small doses of Cyproheptadine. Vroom et al.² report a patient with carcinoid syndrome who responded to the two latter drugs.

Dr. Boley (Pathologist): How do you explain the period of ten months after the first resection during which he did not have flushing of skin, diarrhea and other symptoms? Is it not the metastasis to the liver which causes the symptoms of carcinoid syndrome?

Dr. Hardin (Surgeon): He had hepatic metastases at the time of the first resection. They palpated some tumor nodules in the liver but did not biopsy them. When we operated on him we saw that the main tumor mass was in the left hepatic lobe. There were islands of tumor tissue in the right lobe of the liver. It is well known that carcinoid tumors grow slowly and patients with hepatic metastasis may survive for as long as 20 years. In spite of the presence of metastasis, it is believed that the removal of as much tumor as possible will relieve the symptoms considerably.^{6, 7} There is residual tumor in the right lobe of the liver which we had to leave behind. The tests for hepatic function remained unchanged after the resection. My impression is that he was better after the operation.

We have engrafted part of the tumor into the anterior chamber of the eye of a guinea pig. Because of the absence of ingrowth of capillaries into the anterior chamber of the eye, there is no rejection of the graft. Recent examination shows that the tumor appears to be growing. We hope to use this as an *in vivo* method to test specific antimetabolites or al-

kylating agents for their efficacy against this tumor. We will try to serially transplant the tumor into the eyes of other guinea pigs. In this manner we can test a battery of chemotherapeutic agents. This would be very helpful in selecting drugs to be used against this tumor instead of choosing them in an empirical manner.

Dr. Kittle: In the carcinoid syndrome first recognized by Thorson et al. in 1954,⁸ there are episodes of flushing of the skin, usually starting at the neck and extending to the trunk and extremities. These are accompanied by diarrhea, dyspnea, palpitation, severe headaches and occasionally ankle edema. In patients with long histories, there may be skin changes in the form of telangiectasia and atrophy and brown pigmentation of the skin.

May we see the x-rays, please?

Dr. Hartman (Resident in Radiology): The chest roentgenogram, intravenous pyelogram and barium meal studies are normal. A lower gastrointestinal series shows a functioning ileocolostomy and several diverticula in the colon. Before the operation, a liver scan after the injection of radioactive gold shows large areas of radiolucency in the left lobe of the liver and smaller such areas in the right lobe. A post-operative liver scan revealed a small negative shadow in the central part of the right lobe of the liver. This procedure consists of injection of radioactive gold which is picked up after 45 minutes by the reticulo-endothelial system. This persists for several days and a scan may be done the next day. A good scan, however, can be obtained after 45 minutes to an hour. The radioactive gold is picked up predominantly by the liver. If the liver is damaged, the radioactive material is picked up by the spleen and lymph nodes.

Dr. Kittle: Dr. Mantz, would you tell us what you found on examination of the surgical specimen?

Dr. Mantz (Pathologist): We obtained the slides of the original lesion. Here is a section of the ileum which does not show any mucosal ulceration. In the submucosa are clusters of abnormal epithelial cells. In the underlying muscular layer are groups of large epithelial cells showing palisading at the periphery in a manner similar to basal cell carcinoma of the skin. In some areas, there are small amounts of amorphous basophilic material, evidence of slight production of mucus in addition to functional evidence of endocrine secretion.

Scattered about the sections of the resected left lobe of the liver are numerous nodules of metastatic tumor which appear to be blood-borne (*Figure 1*). They consist of discrete nodules which often show palisading at the periphery (*Figure 2*). Occasional differentiation into a gland-like pattern is noted. Serotonin or enterochrome, the endocrine product of these cells, is detoxified in the liver and in the lungs.

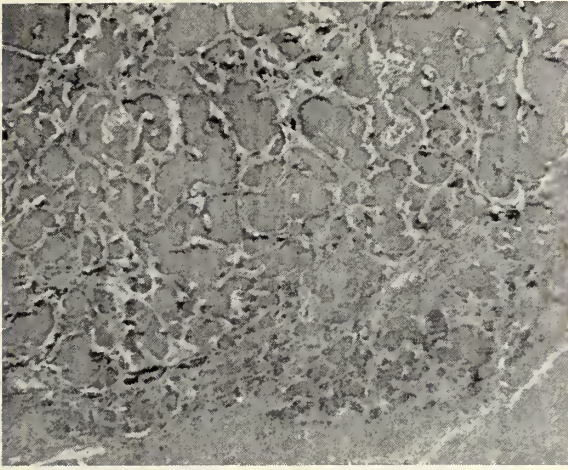


Figure 1. Section of liver showing a discrete nodule of carcinoid tumor ($\times 35$).

When there is an excess of the product of these cells in the hepatic circulation avoiding the hepatic parenchyma, the right side of the heart receives the bulk of the secretion and some alterations are produced. We find in this case groups of tumor cells which have broken out of the portal vein extending into the lobular sinusoids giving morphologic evidence of the means by which secretion may gain direct entrance into the right heart through the hepatic vein.

The carcinoid tumor was first described in 1888 by Lubarsch.⁹ In 1907, Oberndorfer collected a group of these tumors and concluded, because of their indolent course, that they were benign. Because they looked like carcinoma, he coined the term "carcinoid." Since then he has been proven wrong; these are not benign tumors. In 1939, Masson first suggested that these tumors were of an endocrine nature. He postulated that they secrete a substance which is active on the neuromuscular endings of the adjacent bowel. He also appreciated the granules that were within them and pointed out that they were stainable by silver methods. Likewise, the same year, Erspamer, an Italian physiologist and biochemist, identified the nature of this material and gave it the name "enteramine," later called "enterochrome."^{10, 11} He showed that this material can be found in a stainable and an unstainable form in H & E sections, similar to melanin and premelanin. The stainable form appears as brown pigment granules which can be darkened by silver salts, and therefore the term "argentaffin." The unstainable form becomes visible only when treated with reduced silver and is said to be argyrophilic. Erspamer suggested that the difference between the two resides in the fact that the stainable form, "enteramine," exists in combination with a reducing substance that was later identified by Gomori to be resorcinol. Enterochrome or serotonin is best demon-

strated by these silver methods which reveal minute dark brown to black granules in the cytoplasm of carcinoid cells.

The origin of the cells which compose carcinoid tumors is from primitive epithelial elements scattered throughout the gastrointestinal tract, chiefly in mucosal glands of the lower ileum and known as the Kulchitsky cells.¹² When the secretion from such tumors escapes the detoxifying influence of the liver, as in hepatic metastasis, serotonin gets into the general circulation and many interesting phenomena may result.⁶ These are grouped into the carcinoid syndrome. First of all, there is intermittent flushing of the skin which can eventually result in telangiectasia. Right heart failure may ensue due to the development of endocardial and tricuspid valvular lesions. These lesions are mainly in the right side of the heart and not in the left because serotonin is also detoxified by the lungs. There is diffuse thickening of the endocardium and remarkable thickening of the tricuspid leaflets sometimes leading to contractures, widening of the commissures and regurgitation. Occasionally the pulmonic valve is involved. Microscopically, there is an increase of interstitial ground substance and proliferation of fibroblasts resulting in so-called degenerative endocardiosis. Inflammatory cells, most of which are probably mast cells, are noted. In addition,

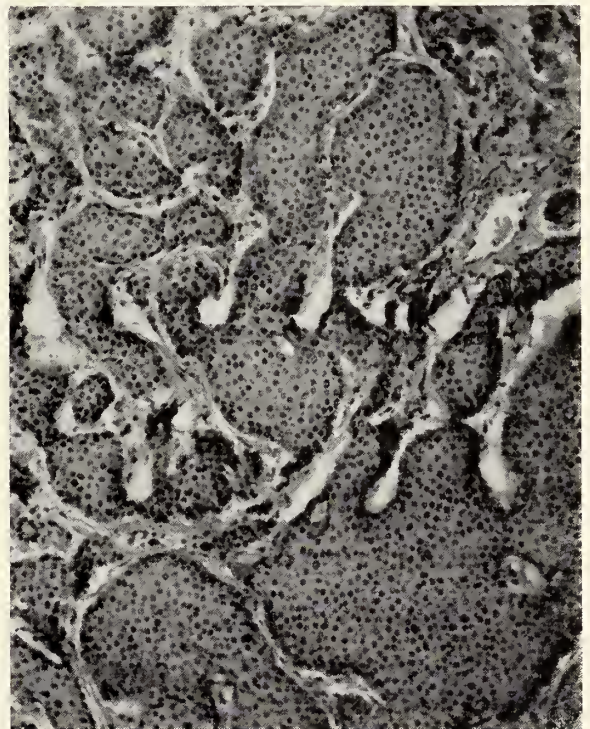


Figure 2. High power view of carcinoid tumor showing groups of epithelial cells showing palisading at the periphery and tendency to acini formation ($\times 140$).

there is profound contracture of smooth muscle, particularly of bronchi and bowel, which may result in asthmatic and diarrheal episodes.

Dr. Kittle: The usual secretory product of the Kulchitsky cell is 5-hydroxytryptamine or serotonin. This is nature's own laxative and when produced in excessive quantities, diarrhea results. More recently, it has been shown that other substances may be produced by these tumors, e.g., histamine and 5-hydroxytryptophan.¹³

Dr. Campbell (Resident in Surgery): Does the fact that some of these tumor cells produce mucin cast doubt as to the origin of the Kulchitsky cell? What is the stem cell of the Kulchitsky cell?

Dr. Mantz: Basically, the Kulchitsky cell is of endodermal origin. It is not derived from ectodermal nor neuro-ectodermal tissues. It represents a deviation from the usual development of endodermal cells into mucin-producing epithelial cells. It may have a specialized function analogous to the myoepithelium which develops in a different fashion from the secretory epithelial cells in the breast.

Dr. Campbell: Have you seen a carcinoid syndrome in a patient with a patent foramen ovale?

Dr. Mantz: No, I have not seen one. Such cases have been reported, however, and changes in the left side of the heart have been described. Neither have I been able to find these changes with bronchial adenomas of the carcinoid type in which, presumably, the serotonin is poured directly into the left side of the heart.

Dr. Kittle: Thorson¹⁴ reported on 46 patients with cardiac lesions; in these, there were 23 valvular and mural lesions on the left side and 92 lesions on the right side of the heart. He attributed this to such an excess of serotonin that all were not detoxified in the lungs and some secretion was returned to the left side of the heart producing alterations in the valves and endocardium.

Dr. Mantz: There is another circumstance in which cardiac lesions are found in the absence of hepatic metastasis. There have been cases of carcinoid tumors in the ovary occurring largely as a component of teratoid tumors of the ovary with pathologic changes in the heart.¹⁵ The ovary pours its secretions into the inferior vena cava, bypassing the liver and thus escaping detoxification.

Dr. Kittle: A similar instance has also been reported from a carcinoid tumor arising from the testis.¹⁴

In summary, today's patient is an adult male with symptoms of carcinoid syndrome for six years who developed intestinal obstruction one and a half years ago. A carcinoid tumor was resected from the ileum at which time hepatic metastases were found. He recovered temporarily but more recently developed fur-

ther symptoms. In order to relieve his symptoms, a left hepatic lobectomy was performed. It is believed that this would diminish the amount of serotonin being produced and delay the development of complications.

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Poison Control REPORTS

A Summary of Activities at K.U.M.C.

CHARLES E. LEWIS, M.D. and

JOHN E. CHAPMAN, M.D., *Kansas City**

One hundred and twenty cases involving accidental or intentional exposure to toxic material were recorded at the University of Kansas Medical Center during the period November, 1961, through September, 1962. Of this group, approximately 95 per cent were seen for treatment or evaluation in the emergency room area. An estimated 15 per cent of all cases treated required admission to the hospital. This experience is perhaps in contrast to the operation of many poison control centers in which telephone inquiries from physicians requesting information constitute the bulk of the activity of the center.

The table outlines the distribution of cases according to material involved. It will be noted that aspirin continues to lead the list in terms of the single most common agent involved—usually in the pediatric age group. Almost one-half of all cases were the result of improper application of either internal or external medication. Bleaches and insecticides rate second and third respectively as the most frequent group of agents producing poisoning. Approximately 90 per cent of all cases seen at the center were in the pediatric age group.

Follow-up information obtained by home visits made by student nurses or public health nurses to the home of the victim has been accomplished in about 20 per cent of the cases. Information obtained from these visits will be summarized in a separate and subsequent report.

The distribution of cases as presented in this table is not unlike those which are reported from other centers.

* From the Department of Preventive Medicine and Community Health, and the Department of Pharmacology, University of Kansas Medical Center.

POISONINGS ADVISED OR TREATED AT K.U.M.C.

Internal Medicines	
Aspirin	21
Barbiturates-Sedatives	8
Tranquilizers	7
Others	15
External Medicines	5
Cosmetics	4
Household Preparations	
Bleaches	13
Lye-Caustics	3
Polishes	3
Solvents	
Turpentine	3
Kerosene	4
Other	3
Insecticides	12
Rodenticides	2
Metallic Poisons	0
Others	12
	120

A good listener is not only popular everywhere, but after a while he knows something.

—*Wilson Mizner*

We have but to change the point of view and the greatest action looks mean.

—*William Makepeace Thackeray*

He who lives without folly is not so wise as he thinks.—*La Rochefoucauld*

Maternal Mortality

This patient was a previously uncomplicated multipara who died in a well equipped hospital in a small community. The certificate indicated death to be due to a coronary thrombosis following term delivery.

The patient did not come to her physician until one month from term. There were no objective abnormalities but the patient complained of severe fatigue, stating that she had not felt well during the entire pregnancy. She was seen at weekly intervals during which time dietary supplements were prescribed and x-rays disclosed no abnormalities.

Two days following her last office visit, she entered the hospital in active labor with ruptured membranes. She was taken to the delivery room immediately and gas inhalations were administered with her contractions. Labor was short and delivery of a normal child was accomplished with an episiotomy. Oxytocics were given routinely. As she was moving from the delivery table to the cart, she became cyanotic, developed chills, and complained of severe chest pain. Oxygen was started immediately and blankets and hot water bottles were applied. Blood pressure quickly fell from 130/80 to 60/0. There was scant vaginal bleeding. She perspired freely and vomited a dark, brown material. Coramine was administered but respirations continued difficult. Metrazol was given intravenously without response. The physician remained in attendance but the patient died within a few hours. No autopsy was performed.

Committee opinion: Without an autopsy, it was impossible to determine the exact cause of death. However, on the basis of the information at hand, it was believed that a diagnosis of massive pulmonary embolus would be more accurate and more likely than coronary thrombosis. Although it would not have altered the course in this case, consultation would have been advisable as in any seriously ill patient. Under the circumstances, it was felt that the management was adequate and the death was unavoidable.

Classification: Maternal death, direct obstetric, unavoidable.

The President's Message

*A Very
Merry Christmas
and a
Happy New Year!*



Norton L. Francis M.D.

President



Vaccination Assistance Act of 1962 (HR 10541)

On August 22, 1962, the Senate passed and the President shortly thereafter signed the bill titled "Vaccination Assistance Act of 1962." There was very little publicity concerning this bill when it passed both houses and was duly signed and became law. Indeed, in the office of the Society there is no information save a news release announcing its passage and signing.

Very briefly this is an act to assist states and communities in carrying out intensive vaccination programs designed to protect their populations, particularly all pre-school children, against poliomyelitis, diphtheria, whooping cough and tetanus. It authorizes the appropriation of \$14,000,000 for the fiscal year ending June 30, 1963, and \$11,000,000 each for the two succeeding years, which will enable the Surgeon General to make grants to states and political subdivisions with the approval of the state health authority. It is intended to create an "intensive community vaccination program" so designed as to achieve immunization of all, or practically all, susceptible persons to the above diseases and to look toward the maintenance of such immunity in the remainder of the population.

Before you dash this magazine to the floor in wrath and indignation consider carefully the reasons given in support of this bill by the Lister Hill committee which originated it.

1. Two-thirds of children under five years have not received the recommended courses of vaccine.
2. One-third of school age children are not fully vaccinated.
3. Of the adult population less than 20 per cent are so protected.
4. In case of national disaster epidemics would further ravage the harassed population.
5. The general benefit to the public being protected from unnecessary suffering and death from these diseases.

Our first impulse is to treat such legislation as just another effort by the Federal Government to monkey

in our business, as in truth it is, but to our shame this JOURNAL published an article in 1961 pointing out the facts which exist in this state, showing our delinquency in providing such protection to our patients.

So, as HR 10541 becomes law we can't shrug it off as being directed to some less favored state. We needn't look for whom the bells toll.

Standardization for Hospitals

The Kansas Medical Society, after years of co-operative effort with the Kansas Hospital Association, has developed a program for standardizing hospital services in this state. Participation on a voluntary basis is invited by each Kansas hospital of fewer than 25 beds. A Kansas Council on Standards for Hospitals, consisting of four members each from the Society and the Hospital Association has been created. H. St. Clair O'Donnell, M.D., is the chairman.

The work of the Joint Commission on Accreditation of Hospitals has proven its value in standardizing the quality of care provided patients in hospitals. The magnitude of their task is such that hospitals of fewer than 25 beds are ineligible for national accreditation. The Kansas effort represents an exploration in this field to provide a similar standardization of services for the smaller hospitals. The program is on a voluntary basis in which hospitals are invited to reply to an extended questionnaire concerning many phases of activities. Hospitals voluntarily complying with procedural standards as set up by the Kansas Council will be issued a certificate attesting to this fact.

Each smaller hospital in Kansas has been mailed application blanks. These will be distributed by the hospital administrator to the governing board and to the professional staff. It is hoped that members of staffs of the smaller hospitals will consider this question with care and, if found to be practical, that the professional staff may approve participation by their hospital.

KANSAS STATE BOARD OF HEALTH

TOPEKA, KANSAS

Division of Preventable Diseases—Division of Vital Statistics—Kansas Morbidity Incidence

Summary of Cases Reported in August 1962 and 1961

And Cumulative Totals for the First Eight Months of 1962 and 1961

Disease	August			January to August Inclusive		
	1962	1961	5-Year Median 1957-1961	1962	1961	5-Year Median 1957-1961
Amebiasis	5	6	1	37	31	31
Aseptic meningitis	6	1	*	10	2	*
Brucellosis	—	2	4	13	30	43
Cancer	212	266	417	2,611	2,680	3,351
Diphtheria	—	—	—	—	—	1
Encephalitis, infectious	1	—	3	15	11	19
Gonorrhea	213	244	208	1,522	1,844	1,378
Hepatitis, infectious	21	30	13	352	574	196
Meningococcal, meningitis	—	—	—	10	12	12
Pertussis	12	1	6	34	18	43
Poliomyelitis	—	5	9	—	7	15
Rheumatic fever	1	—	—	8	4	3
Salmonellosis	3	4	*	35	37	*
Scarlet fever	—	2	3	406	847	455
Shigellosis	5	6	5	41	89	16
Streptococcal infections	13	14	—	914	921	285
Syphilis	100	87	119	816	827	922
Tinea capitis	14	1	12	88	75	146
Tuberculosis	18	24	24	174	205	250
Tularemia	—	—	1	7	9	21
Typhoid fever	—	—	1	—	2	4

* Statistics on 5-Year Median not available.

CO-ORDINATED STATE-WIDE ORAL POLIO PROGRAM

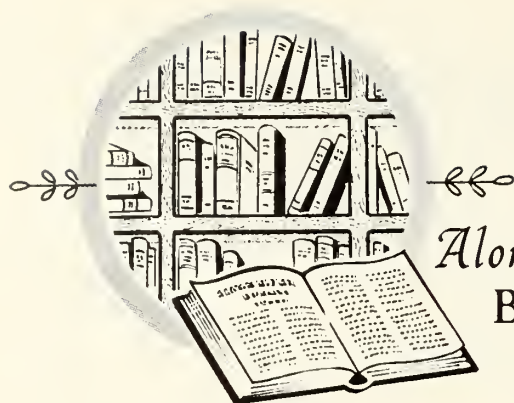
On October 4 at Salina a general meeting of health officers decided that the State-wide oral polio program should be:

Type I Week of December 2, 1962

Type II Week of January 3, 1963
Type III Week of March 10, 1963

The latter is still tentative.

To date 92 counties plan to participate in the program. Publicity kits will be distributed to the various counties beginning October 29.



Along The BOOKSHELF

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Book REVIEWS

THE SCIENCE OF DREAMS, Edwin Diamond. Doubleday & Company, Inc., Garden City, New York, 1962. 264 pages, \$4.50.

The author, a science editor, has gathered data from all known experiments and dream analysis and it is his prime concern with this book to report, in the form of a narrative, on some exciting research. Human race has long been interested in dreams and from Pharaoh to the Iroquois brave, people had their theories on meaning and interpretation of dreams. However, only modern technology has made it possible to take a glimpse into the unknown. Thus, in the last ten years more has been learned about dreams than in the 2,500 years preceding.

The familiar adage, "I never dream," can best be explained that the person cannot remember his dreams. The findings of researchers Kleitman and Dement have proven rather conclusively by way of dream monitoring techniques that an average person has four to six dreams a night, each dream occurring every 90 minutes of sleep, so that of his sleeping time of eight hours, the average person spends about 20 per cent dreaming. Throughout the night each dream episode increases in length while the depth of sleep, as measured by the EEG tracings, decreases steadily as the night progresses. Thus, the first dream may last only three minutes, while the last dream may last as long as 28 minutes.

It is believed it would be impossible for human beings to function normally if their dream life were suppressed. The dream deficit can build up to a point where the dreaming tendency breaks loose, first in visual illusions, next in delusions and hallucinations. Where sleepers were deprived of dreams (by way of being awakened at the start of each dream and kept awake during the day) they tried to dream more the following night. The dream-deprived became noticeably tense and anxious, they had difficulties in concentrating, etc. None of these observed changes was seen when the dreamless part of their sleep was disturbed.

One school of thought holds the dream cycle may

be necessary in order to provide a regular source of stimulation for the mind during sleep; in other words, that dreaming PERMITS the mind to go insane every night. Another theory is that the dream PREVENTS the mind from going insane every night.

The reviewer believes we may have confidence in the author's portrayal of this intricate subject matter and in his interpretations based as they are upon thorough and conscientious study. The reader is free to take or to leave, but whatever his temper or the angle of his observation he will find material here for deep thought and a basis for increased respect for the subtleties of dreaming.

The reviewer had not been aware of the tremendous amount of work and research being performed in the field of dream science. It is believed that the general reader is not fully aware of this extent either. Granted, much more remains to be done but while finality may always elude us, we have begun to lift the veil which hitherto concealed the mysterious realm of dreams.

The entire book is most fascinating. It makes for easy and fast reading and is highly recommended to all.

On the basis of what was learned by reading this book, the reviewer wishes the reader a good night's sleep and its corollary, *a good night of dreams!*—V.B.

NEW MEMBERS

The JOURNAL takes this opportunity to welcome these new members into the Kansas Medical Society.

Wallace F. Cox, M.D.
1610 Washington Blvd.
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The Role of Health Information Foundation

GEORGE BUGBEE, *New York, New York**

The years immediately following World War II brought great national concern over how the American economy would adjust to the changes that came with peace. By 1949 the transition was reasonably assured, but the administration then in Washington nevertheless recommended an expansion of government participation in the field of medical care. The possibility of such expansion led directly to the organization of Health Information Foundation in 1949 and 1950 by a group of industrial leaders who believed that our voluntary system of medical care is one of our greatest assets.

The primary purposes of the Foundation are well established and well known. Its sponsors believe that in the development of health services—in deciding what is best in the long run for the nation's health—the public will act wisely if it is well informed. The Foundation assists by reporting progress in medical science and its value to the public, and by supporting research to identify problems and solutions potentially helpful to the nation's voluntary health agencies in coordinating activities and making them increasingly effective in serving the public.

In its 12 years of research and education, the Foundation has received substantial financial support from all segments of the pharmaceutical industry. Last year more than 150 companies—manufacturers, wholesalers and retailers—contributed, and support has been remarkably stable.

Monthly Bulletin

The Foundation's early years were a tooling up period and an effort to develop effective programs within overall aims. Public education was vital, but how a relatively small agency might have impact on the public had to be demonstrated. Among the earliest and most important educational efforts was the Foundation's bulletin, *Progress in Health Services*, a publication that has been mailed monthly to almost 60,000 opinion leaders countrywide. The mailing list includes all metropolitan newspapers, many weeklies, professional journals, science writers, and reporters and commentators for radio and television. A summarizing press release is enclosed to facilitate use of the data. News clippings from the past six months

show that several thousand news stories and editorials resulted from the bulletin during that period.

Progress in Health Services as its name indicates, documents increases in life expectancy, advances in the treatment of major diseases such as mental illness, cancer, infantile paralysis, and in coping with accidents. For example, a recent issue described the one-third increase in working life expectancy for men achieved since 1900, and points out the implications for the nation. This increase in working life expectancy is, of course, a result of more effective medical care, particularly in controlling infectious diseases during the early and middle years of life.

Progress in Health Services is distributed as a service, without charge. It is sent to leaders in the health professions, schools, libraries and legislators, as well as to the media already mentioned. In fact, it is sent to all are concerned with planning the future of health services and are responsible for communicating with the public.

Social and Economic Studies

But equally consequential in informing the public has been the development of more explicit information about how the public pays for medical care, the overall costs of services, the degree to which voluntary health insurance is helping people to pay for care, and the use, cost, and organization of medical services of all types. Such social and economic research is receiving added emphasis in every aspect of American life, through business and government, and is vital in evaluating present performance and charting the future. It is used as a tool in planning the national economy and as a background for almost all policy decisions affecting the national welfare. In spite of this surge of interest in social and economic research, however, productive and useful data are not easily come by.

Currently a major portion of the resources of the Foundation is earmarked for the support of two projects, both relating to the cost of hospital care. Such cost has increased between 300 and 400 per cent in recent years, or by far more than any other component of medical care. Because the service rendered in hospitals and the demand for hospital care have greatly increased, public criticism has focused on hospital use and price, frequently generating criticism of physicians and others in the health field.

A Foundation study of hospital use in Massachusetts is nearing completion. A sample of all discharges

* President, Health Information Foundation.

Reprinted from *The Journal of the Indiana State Medical Assn.*, April, 1962, Vol. 55, No. 4, Pp. 502-504 (Copyright 1962, Indiana State Medical Association).

in that state has been studied with interviews of each patient and the physician or physicians who treated the patient in the hospital. This study should yield much new data on hospital use and be helpful in showing the degree to which present use is justified. Few facts are presently available, and there is some justification for assuming that increased use of hospitals is not the result of abuse but of the changing value of medical care, the aging of the population, and changing public attitudes toward necessary care.

The second major project largely financed through the 1961 budget is a study of costs in hospitals over time being conducted by the University of Michigan. It should do much to explain the factors that have led to the increase in hospital costs. Much of the increase, it seems safe to say, is inevitable, and while greater economy needs to be encouraged it will not significantly affect further cost increases. This makes such a descriptive study important for public understanding of hospitals today.

Research Grants

Through 1961 the Foundation will have made 48 research grants to 21 agencies, and some few studies have been conducted solely by the staff. The Foundation has probably made its most significant contribution through detailed information—carefully analyzed in terms of demographic data—of how people use medical care; for example, not only how many visits are made to physicians, the number of admissions to hospitals, the number of days of care, and the extent of surgery and so on, but in addition, facts have been developed on unit costs for services, expenditures by individuals and families, voluntary health insurance coverage, and the proportion of the medical care bill paid by such insurance. Nationwide family surveys of medical care were conducted in 1953 and 1958.

Through the generous support of the pharmaceutical industry, many Foundation publications have been distributed on request. During 1960 the Foundation had more than 17,000 requests for publications and distributed more than 50,000 individual items in addition to the monthly bulletin. For example, 1,124 information kits were supplied last year to college students debating compulsory health insurance. In addition, we were called on to help with questions from such known sources as *Life*, *Time*, the Associated Press, the Scripps Howard Syndicate, United Press International, and many other organizations and individuals in and out of the health field writing and publishing on health matters.

The Foundation's research is useful only as it reaches those who can learn from the findings. Therefore we take some pride in the effectiveness with which the Foundation distributes its material.

From an unknown agency which at first was received with some skepticism, the Foundation is now accepted as a reliable source. Effective distribution of findings has led to broad use of data, as is repeatedly demonstrated not only in such broad circulation media as I have mentioned, but particularly in much scientific literature relating to social and economic developments in medical care.

Industry Policies

Leaders in the pharmaceutical industry, I believe, should be particularly complimented on the policies they first established for the guidance of the Foundation and the integrity which they have shown in maintaining these policies. They have insisted on the broad distribution of data factually presented and unbiased, and they are convinced that it is through objectivity that the Foundation can be of true public service. This policy has brought wide acceptance of material distributed by the Foundation; it deserves recognition in the health field as a contribution by the pharmaceutical industry. The attitude of the industry was well expressed by the Chairman of the Board of the Pharmaceutical Manufacturers Association, when he said at their annual convention last year:

"Again, in looking outward as an industry, we should have the foresight to support long-range projects which give promise of advancing medicine and health. The Health Information Foundation is a prime example of a forward-looking service of this kind. Health Information Foundation deserves continuing strong support by all of us."

If you pick up a starving dog and make him prosperous, he will not bite you. This is the principal difference between a dog and a man.—*Mark Twain*

A good society is a means to a good life for those who compose it; not something having a kind of excellence on its own account.—*Bertrand Russell*

We owe it to our country to pay our taxes without murmuring; the time to get in our fine work is on the evaluation.—*Edgar Wilson Nye*

Everything in today's modern home is controlled by switches—everything, that is, but the children.

Junk is something you keep for ten years and discard two weeks before you need it.



Personalities—IN KANSAS MEDICINE

New Fellows of the American College of Surgeons were inducted during a ceremony at the annual Clinical Congress of the organization held in Atlantic City during October. Introduced as new Fellows from Kansas were: **Calvin J. Zerwick**, Arkansas City; **William E. Burger** and **William A. Reed**, Kansas City; **George S. Bascom**, Manhattan; **Robert C. Long**, Norton; **Robert M. Mathews**, Shawnee Mission; and **Donald W. Selzer** and **William H. Zimmerman**, Topeka.

Fred S. Dozier has moved from Herington to Dallas, Texas, where he has accepted a residency in anesthesiology at Parkland Hospital. Dr. Dozier has been associated in practice with **Arthur D. Danielson** and **James O. Gilliland** in Herington for the past several years.

New officers of the Kansas Academy of General Practice were installed at the organization's annual assembly in Kansas City in October. Officers for the coming year are: **Norman H. Overholser**, El Dorado, president; **Floyd C. Beelman**, Topeka, president-elect; **Galen W. Fields**, Scott City, vice president; **John N. Blank**, Hutchinson, secretary; **Lawrence L. Leigh**, Overland Park, delegate; **Clyde W. Miller**, Wichita, alternate delegate; and **Alexander C. Mitchell**, Lawrence, and **J. Allen Howell**, Wellington, directors.

R. P. Weltmer, Beloit, attended the annual conference of the South Central Section of the American Urological Association in October. The sessions were held in Mexico City and Acapulco.

H. R. Schmidt, Newton, who attended the International Cancer Conference in Moscow, Russia, earlier this year, was the speaker at the October meeting of

the Kansas Society of Medical Technologists which was held at Newton.

The Downtown Kiwanis Club of Wichita had **Tom Butcher**, Emporia, as guest speaker at their September meeting. Dr. Butcher spoke on "The Fifth Dimension," the title of his book soon to be published.

Among the physicians from Topeka who participated in and attended the annual meeting of the Kansas Tuberculosis and Health Association in Wichita in September were: **James M. Mott**, **M. Martin Halley**, **William Nice**, **Otto Ravenholt**, **Robert C. Lawson** and **Andre Baude**.

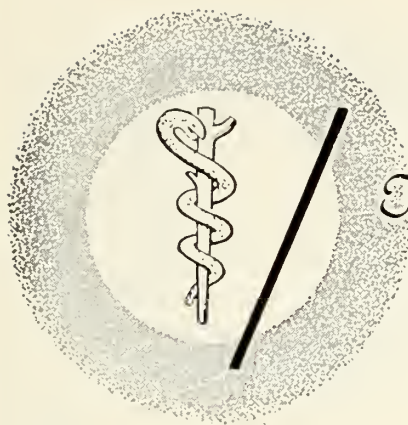
Eugene C. Hwa, Newton, has been appointed to the Salem Hospital staff as radiologist. The appointment of Dr. Hwa creates a new position on the hospital staff and a new service to the community of Hillsboro.

The Seward County Council of Women's Clubs heard **M. C. Spencer**, Liberal, discuss mental health at their first meeting of the year which was held at the Warren Hotel in Liberal the last of September.

C. E. Stevenson, Neodesha, attended a course on surgery of the hand at Cook County Postgraduate School of Medicine in Chicago during the first week of October.

"Therapeutic Uses of Hypnosis" was the subject of the talk given by **Edward E. Long**, Humboldt, before the Registered Nurses club at the fall meeting held at Chanute.

(Continued on page 548)



The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.

MEDICINE'S ATTITUDE

The medical profession has been subjected to a considerable verbal beating in late years—much of it, obviously, based on political motivations or plain ignorance.

So a direct and simple statement of the profession's attitude and purpose—an attitude and purpose shared by the great majority of this country's doctors and other medical personnel—is in order.

Dr. George M. Fister, now president of the American Medical Assn., recently provided it.

"We will not compromise with those who regard medical care problems as simply playthings in the game of politics . . . gimmicks to attract the votes of the gullible. But we will cooperate, to our very utmost, with government officials, legislators and all Americans who are sincerely interested in finding sound, practical solutions to such problems—solutions which include both a respect for medical standards and a respect for the taxpayer."

This policy applies to the medical problems of elderly people, which have, unfortunately, become a bitter political issue, as well as to the medical problems of all other age groups.

The medical profession has been an effective force in helping to expand voluntary health insurance at a reasonable cost. It has been solidly behind the Kerr-Mills bill, passed two years ago, which offers extensive medical services under a federal-state program to those who cannot pay for them out of their own pockets.

Dr. Glenn Peters pointed that out during his appearance before the New Century club here last week.

It should also be remembered that it is a rare doctor indeed who does not donate time and hard-won knowledge, without cost, to treating the indigent.

Medicine's fight is against political domination—

against a system in which a bureaucracy would write and apply the rules.

If it wins the fight, the primary beneficiaries will not be the doctors, but the sick.—*Bonner Springs Chieftain*, Oct. 9, 1962.

THE FIGHT GOES ON

The campaign to bring about medical care for the aged through a program financed by income from social security taxes is still being waged by the administration. It is time the working people of this country who pay social security taxes raised their voices in protest.

Not only are social security taxes already slated for increases, but the government wants to add more to the working man's burden by hiking the tax again to provide for medicare for the aged.

The president-elect of the American Medical Association recently was greeted by 14 pickets when he arrived for a speech in Miami. He was scheduled to debate an official from the Department of Health, Education and Welfare on social security financing of the health care plan for the aged. The pickets were members of the Florida Senior Citizens League. They were from 66 to 80 years old.

In South Dakota a speaker for the state medical association was greeted by pickets. They weren't so well informed on the issue and one said he was picketing because "they sent me." One apologized for being there. A county welfare director reported that seven of the eight pickets were on old age assistance and their medical care is more extensive than the program for which they were picketing. Apparently they were picked up and paid to picket.

If the proponents of the medicare bill, including

(Continued on page 548)

What You Should Know About Car Lubrication

If you're among the 75 million motorists traveling the nation's highways and byways, you can't afford to ignore some simple arithmetic.

Your car—your second biggest investment—can be protected from reaching the junk pile at an early age and from having roadside breakdowns, if you'll invest \$15 a year. How to do it? Give your car a lubrication job, plus the "lift" and safety check that goes with it every 1,000 miles, recommends the National Lubricating Grease Institute. You'll want to know what a good lube job can do for you and how you can make sure you're getting a decent job.

Lubrication, even if yours is a new car, is vital to reduce metal-to-metal contact. A little lube care can prevent worn parts, is actually the least expensive form of insurance you can take out against costly repairs and replacements. Grease left in too long thickens with age, causing hard riding, hard steering, stiff clutch and brakes. When gear lubricant thickens, it can cause wear and friction, in addition to wasting gas. Chassis Lubrication is a "must"—if you want smooth, quiet riding, easy steering and greater gas mileage.

As for safety, while your car is on the lift, any good service station should inspect it at the 23 "Life-Saving" points. Through this kind of inspection, present or incipient troubles can be spotted, greatly reducing your chances of a breakdown. At the very least, a look and a shake by an experienced service man can reveal eight common conditions that can mean accidents, injury or possibly death if not detected and repaired. He should *look* for deep tire cuts, radial cracks and smooth tread; steering box coming loose from the frame; motor supports loose or broken; broken spring leaves or loose U-bolts. He should *shake* your car to see if there are: loose front suspension parts; worn universal joints; front wheels loose from worn king pins, loose tie rods or wheel bearings improperly tightened; steering wheel with too much play.

Here's a simple way to test whether your service station is giving you thorough lubrication: ask to see the lubrication guide which the serviceman uses for your car make. (One chart publisher puts out an annual compilation of lubrication charts for all makes of U. S. cars manufactured in the past ten years.)

If no such guide is available, you have good reason to take your car elsewhere. It's a rare mechanic who can properly lubricate the great variety of makes and models on the road today without frequent reference and close attention to specifications set down in some sort of guide.

The first time you're getting a thorough grease job at an unfamiliar station, take a half hour to stay with your car. Don't hesitate to be a bit of a nuisance—it'll help establish you as a stickler for detail—someone who knows what a good job is. Look for these signs: (1) Your service order should be written up—with a special note on special services needed: radiator drain and flush, wheel-bearing lubrication, air cleaner, oil filter, etc. (2) Note whether a lube guide is used to locate all fittings, and watch to see whether the attendant wipes fittings clean before he greases them. If he doesn't, he's forcing dirt and grime into the joint being greased. (3) His standard procedure should include the inspection of crankcase level, transmission, power steering unit and differential. He should also lube many body points to eliminate squeaks and rattles—door, trunk and hood latches and hinges, door locks. (4) He should give mechanical parts a safety inspection—including muffler and tailpipe, tires, brakes, windshield wiper blade, lights, fan belt, heater and radiator hoses, battery, steering mechanism and shock absorbers.

This is a service business, so don't settle for inferior service which, in the long run, will cost you time, trouble and money. Last, but not least, one of the best general guides to a dependable, well-run service station is orderliness and cleanliness.

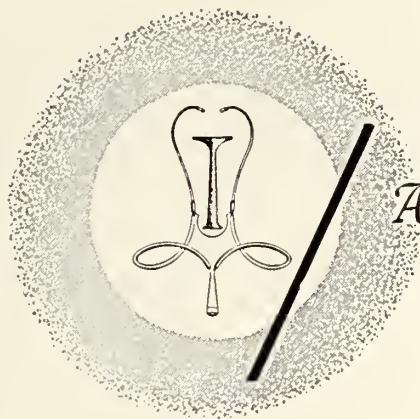
Floors littered with greasy rags and tools usually mean slipshod attention and poor lubrication practices.

Also important: says the American Petroleum Institute: have the oil in your car's engine changed often. The rule it recommends: in summer, change it every 60 days, in winter every 30 days. But never exceed the car manufacturer's recommendations for the driving conditions prevailing. Also, have the oil filter checked at each oil change. Never leave this element in longer than about 4,000 miles—although ideally it should be changed at each oil change.

You can add years to your four-wheeled friend's life by following this simple arithmetic—protect the investment you've already made in your car.

To produce an income tax return that has any depth to it, any feeling, one must have Lived—and Suffered.—*Frank Sullivan*

There were 2,910 pedestrians killed and 66,030 injured on U. S. roads last year because they crossed between intersections.



Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. Notice of the session is posted in advance to allow the physician time to make preparations.

JANUARY

Northwest Missouri Chapter of the Missouri Academy of General Practice and the University of Kansas School of Medicine postgraduate program, *Recent Advances in Fluid and Electrolyte Therapy*, January 15. The Moila Temple, St. Joseph, Missouri. Contact: John P. Mabrey, M.D., Plattsburg, Missouri.

American Society for Surgery of the Hand, *Surgery of the Hand*, January 18-19. Americana Hotel, Bal Harbour, Miami Beach. Contact: Don L. Eyler, M.D., Secretary, 1919 Hayes Street, Nashville.

Annual postgraduate course for the General Practitioner, *General Practice Review*, January 13-19. University of Colorado School of Medicine. Contact: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver.

American College of Surgeons, sectional meeting, January 12-23, Hotel Westward Ho, Phoenix.

American College of Physicians postgraduate course, *Diseases of the Blood Vessels and Thromboembolism—Diagnosis and Treatment*, January 21-25. Cornell University Medical College and the New York Hospital. Contact: E. C. Rosenow, Jr., M.D., Exec. Director, The American College of Chest Physicians, 4200 Pine Street, Philadelphia.

Ninth quarterly postgraduate seminar on psychiatric problems for the family physician. *Homicide and Suicide, and the Medico-Legal Aspects of Psychiatry*, January 27, Neurological Hospital, Kansas City, Missouri. For more information regarding this and future seminars, contact: GP Program, Neurological Hospital, 2625 West Paseo, Kansas City 8, Missouri.

The 27th annual session of the International Medical Assembly of Southwest Texas, January 28-30. The Granada Hotel, San Antonio. Program will be a symposium concerning all aspects of cancer. Contact: Mr. S. E. Cockrell, Jr., Exec. Secretary, 202 West French Place, San Antonio.

FEBRUARY

Department of Postgraduate Medical Education, University of Kansas School of Medicine postgraduate courses:

Feb. 11-15 Medical-Surgical CLINICAL SYMPOSIA: *Endocrinology, Medical Problems in Surgical Patients, Psychiatry, Gastroenterology, Pulmonary Disease.*

Feb. 18-20 *Radiology and Radioactive Isotopes.*

Contact: The Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas.

The American College of Radiology, February 6-9, Drake Hotel, Chicago. Contact: William Stronach, Exec. Director, 20 N. Wacker Drive, Chicago.

American College of Physicians postgraduate course, *Modern Physiological Concepts of Cardiovascular Disease*, February 11-15. Presbyterian Medical Center, San Francisco. Contact: E. C. Rosenow, Jr., M.D., Exec. Director, The American College of Physicians, 4200 Pine Street, Philadelphia.

Northwest Missouri Chapter of the Missouri Academy of General Practice and the University of Kansas School of Medicine postgraduate program, *The Small Laboratory*, February 19. Contact: John P. Mabrey, M.D., Plattsburg, Missouri.

Postgraduate course, *Management of Trauma*, February 27-March 1. University of Colorado School of Medicine. Contact: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver.

MARCH

American Industrial Health Conference, March 18-21, Washington, D.C. Contact: American Industrial Health Conference, 55 E. Washington Street, Chicago.

American College of Physicians postgraduate courses:

Mar. 4-8 *Physician Methodology in Medical Research*, Massachusetts Institute of Technology, Cambridge.

Mar. 18-23 *Recent Advances in Cardiovascular Disease*, Mount Sinai Hospital, New York City.

Contact: E. C. Rosenow, Jr., M.D., Exec. Director, 4200 Pine Street, Philadelphia.

Department of Postgraduate Medical Education, University of Kansas School of Medicine postgraduate courses:

Mar. 11-13 Pediatrics.

Mar. 18-19 Cardiac Auscultation.

Contact: The Department of Postgraduate Medical Education, University of Kansas School of Medicine, Rainbow Boulevard at 39th Street, Kansas City, Kansas.

The next examination for Certification in Occupational Medicine will be held March 16, 17, and 18, it has been announced by the American Board of Preventive Medicine. The examination has been scheduled at the Sheraton-Park Hotel in Washington, D. C., preceding the annual meeting of the Industrial Medical Association which will be held at the same hotel March 18-21. Applications for certification should be sent to Tom F. Wayne, M.D., Secretary-Treasurer, American Board of Preventive Medicine, 4219 Chester Ave., Philadelphia.

The Department of Otolaryngology, University of Illinois School of Medicine postgraduate course, *Laryngology and Bronchoesophagology*, March 18-30. Contact: The Department of Otolaryngology, University of Illinois School of Medicine, 1853 W. Polk, Chicago.

The American Cancer Society, Kansas Division, Annual Midwest Cancer Conference, March 29-30. Contact: American Cancer Society Kansas Division, Inc., 824 Tyler, Topeka.

American College of Allergists Graduate Instructional Course and 19th Annual Congress, March 24-29, Americana of New York, New York City. Contact: John D. Gillaspie, M.D., Treasurer, 2141 Fourteenth Street, Boulder.

Personalities

(Continued from page 544)

Ralph I. Canuteson, Lawrence, was awarded the Dearholt Medal at the Mississippi Valley Conference on Tuberculosis held in Indianapolis in November. The award is given each year for outstanding effort and distinguished contribution to tuberculosis control

on the part of an individual living in the conference area.

Earl G. Brown, former state and Topeka health officer, died on November 1 in Milltown, New Jersey. Dr. Brown was president of the Society in 1927 and editor of the JOURNAL from 1932 to 1934.

Walter M. Furst retired in November after 16 years as staff physician at the State Tuberculosis Sanitarium in Norton.

Kansas Press

(Continued from page 545)

the administration, are going to use these methods to push the legislation, the people who are going to pay for it with higher social security taxes ought to get off their chairs and demand consideration.

The people who pay social security taxes are in a majority. They have a right to call for spending that helps only those in need. Every type of tax keeps going up and the very people who could control taxing and spending are reluctant to act, mostly for political reasons, and then they scream about high taxes.

Working people have no valid reason to carry an extra load under social security. Their attitude will make the difference. Apathy will breed higher taxes.

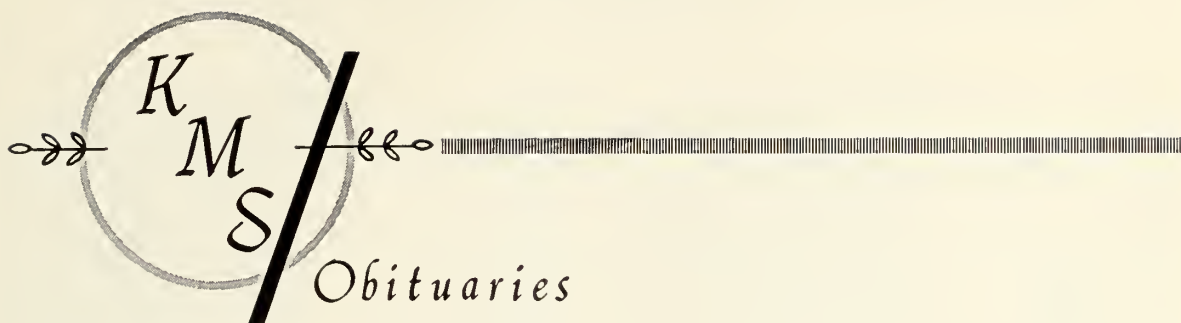
The Kerr-Mills medical program is available and in use in many states. It seems sincere proponents of a medicare plan would devote their time to promoting that which is available rather than pushing something new that will hit the working man in the pocketbook. —*Arkansas City Daily Traveler*, Nov. 2, 1962.

Series E and H Savings Bonds issued since June 1, 1959, yield over 21½ per cent for the first year and a half; then 4 per cent to maturity.

True, there is a tide in the affairs of men, but there is no gulf-stream setting forever in one direction.—*James Russell Lowell*

There are only two styles of portrait painting; the serious and the smirk.—*Charles Dickens*

The ability to say no is perhaps the greatest gift a parent has.—*Sam Levenson*



THOMAS J. BROWN, M.D.

Thomas J. Brown, 79, Hoisington, died suddenly at his home on October 26, 1962. He was born December 28, 1882, and was graduated from the University of Tennessee Medical school in 1913. After completing his internship at Memphis City hospital, he established his medical practice in Hoisington where he resided for nearly 50 years.

Dr. Brown served on the staff of the Hoisington hospital and St. Rose hospital in Great Bend. He was a member of the city commission for a number of years; a member of the Hoisington A.F. and A.M. and Consistory, and the American Legion, having served in the medical corps during World War I. He also served for several years as a member of the Hoisington Board of Education and the Board of the Hoisington Federal Savings and Loan Association.

Surviving Dr. Brown are two sons, a daughter and eight grandchildren.

LAWRENCE L. COOPER, M.D.

Lawrence L. Cooper, physician and surgeon in Fort Scott for 29 years, died October 29, 1962, at Mercy Hospital in Fort Scott. He was 58 years old.

Born at Sheldon, Missouri, on January 18, 1904, he was a graduate of the University of Missouri, the University of Kansas School of Medicine, and the Kansas City College of Pharmacy. He began his practice in Fort Scott in 1933. Prior to that time he had been on the staff of the state hospital at Nevada, Missouri.

Dr. Cooper served in the United States Army from 1942 to 1945. He was county coroner for many years and chief of the medical staff of Mercy hospital.

Dr. Cooper's survivors include his wife, a son and a daughter.

ROBERT C. McClymonds, M.D.

Robert C. McClymonds, 83, Walton physician, died October 17, 1962, at the Axtell Christian hospital, Newton.

He was born in Unionville, Pennsylvania, on November 11, 1878. He was graduated from Amity College in College Springs, Iowa, and was a member of the first graduating class from the University of Nebraska Medical School. Dr. McClymonds began his practice in Walton in 1903, and although he was in semi-retirement at the time of his death, he had served that community for nearly 60 years.

Dr. McClymonds had been associated with the Axtell Christian and Halstead hospitals and helped to found Bethel Deaconess hospital in Newton. He was a member of the United Presbyterian church.

In addition to his widow, survivors include two daughters, three sons, and ten grandchildren.

The Kansas Medical Society—1962-1963

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Cloud.....	F. P. Thornton, Jr., Concordia	Paul L. Nelson, Concordia
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Crawford.....	Carl S. Newman, Pittsburg	Earl E. Miller, Pittsburg
Dickinson.....	D. C. Chaffee, Abilene	D. C. Rorahaugh, Abilene
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INDEX TO VOLUME LXIII

Calendar year 1962

AUTHORS' INDEX

Berkas, Ernest M.	516
Bernreiter, Michael	292
Brosius, Frank C., Jr.	461
Butin, J. Walker	338
Catlett, J. M.	477
Chapman, John	89, 228, 350, 535
Cheatum, Sarah G.	179
Chen, Ronald	225
Colip, Floyd Merlynn	388
Cotton, Robert T.	471
Cummings, J. N.	377
Darrow, Daniel C.	275
Delp, Mahlon	12, 126, 230, 341, 434
de Schweinitz, Louise	522
Dodge, Mark	477
Fisher, James B.	494
FitzPatrick, Martin	327
Foroughi, Ezatollah	9
Givner, David	420
Green, William G.	417
Haffner, William N.	106
Hammond, R. Gilbert	420
Hartley, Fount K.	51, 193
Heilbrunn, Alfred	44
Hertzler, Jerrod J.	424
Holt, John M.	21
Howard, Cleve W.	409
Hunnicutt, Cecil C.	387
Jackson, Haywood R.	467
Jacobson, Merlin E.	516
Jambor, J. J.	335
Keuter, Willem	288
Kittle, C. Frederick	44
Larimore, Richard L.	280
Lee, Kiyung	288
Lewis, Charles E.	89, 123, 228, 350, 535
Lou, Te Yong	217
Major, Ralph H.	497
Mantz, Frank A.	467
Maramba, Tomas P., Jr.	54, 196, 531
Mastio, George J.	516
McCune, Elizabeth	96
Miller, C. Arden	78
Miller, Don R.	85
Miller, June B.	522
Mohler, Jack M.	201
O'Donoghue, Cathleen	225
Parry, Hazel	96
Peckenschnider, L. E.	417
Pettitt, Robert M.	59
Poser, Charles M.	481
Price, Kenneth C.	422
Pruitt, Raymond D.	39
Rankin, Thomas J.	99
Reskallah, Totmes	288
Rising, Jesse D.	12, 81, 126, 230, 341, 434
Runnels, John B.	296
Schaefer, Charles E.	238
Snodell, Firmin E.	352
Snodgrass, R. Glenn	481
Soward, Olaf S.	371
Stein, Joseph M.	330
Stone, G. Rex	519
Sweeney, John E.	490
Szukalla, Bernice	91
Thierstein, Samuel T.	288
Tiller, Jack	1
Tocker, Alfred M.	420, 513
Tocker, Lilia M. Rodriguez	420, 513
Treadwell, Margaret R. G.	93
Warren, James C.	179
Webster, James R., Jr.	4
Wenner, Herbert A.	217
White, Ralph E.	188, 222, 384
Williams, Charles L.	417
Williams, Donald F.	525
Wilson, Sloan J.	467
Wise, George W.	78
Wissner, Seth E.	422
Youngstrom, Karl A.	119

INDEX TO SUBJECT MATTER

Aging, the problems of	384
American Medical Association: house of delegates, Denver meeting	35
report from 111th annual meeting	362
Appendicitis, acute (CPC)	230
Arteriosclerosis, abdominal (CPC)	126
Arteritis, temporal (giant cell)	330
Basic medical sciences, the	78
Bronchiectasis, regression of, in the adult	513
Carcinoma (<i>see</i> Tumors)	
Cardiac arrest: automatic ECG synchronized external mas- sage machine	420
Cardiovascular system: heart: accelerated auriculoventricular conduction in psychiatric patients	292
cardiac arrest and resuscitation in general practice (thesis)	388
cardiac arrest: automatic ECG synchronized external massage machine	420
dextro-thyroxine therapy in patients with hypercholester- olemia and arteriosclerotic heart disease	461
heart disease: report of a survey in the state of Kansas	417
open heart surgery: aortic cardiac fistulas; ruptured sinus of Valsalva	44
post-myocardial infarction syndrome: non-specific peri- carditis complicating myocardial infarction	471
peripheral arteries: arteriosclerosis, abdominal (CPC)	126
arteritis, temporal (giant cell)	330
brachial arteriography, its value in cerebrovascular in- sufficiency	481
ureteral obstruction as a late complication of abdominal aneurysm resection	516
Cerebral lipidoses and demyelinating diseases	377
Chemistry of blood: resins, cation exchange, in hyperkalemia (thesis)	201
Chronic bronchitis, a major respiratory disease	327
Cirrhosis, primary biliary: case report	490
Clinical pathological conferences: appendicitis, acute	230
arteriosclerosis, abdominal	126
cystinosis	434
hemochromatosis	12
reticulo-endotheliosis	341
Common bile duct, obstruction of, as a complication of duo- denal diverticulum	51
Costa Rica, the medical profession in	409
Cystinosis (CPC)	434
Dietetics, its heritage and future	96
Drugs: agranulocytosis following Monase therapy	338
Dupuytren's contracture: case report	193
Emergency service of the hospital	85
Endocrine glands: dextro-thyroxine therapy in patients with hypercholester- olemia and arteriosclerotic heart disease	461
parathyroid adenoma in association with pancreatic calci- fication	519
progesterone-like hormones for prevention of fetal loss ...	288
sex hormones	179
sexual immaturity in the female	477
Excellence, the dilemma of	39
Functional illness in general medicine: case report	225
Gastrointestinal system: appendix and intestines: appendicitis, acute (CPC)	230
carcinoid syndrome (tumor conference)	531
gall bladder and bile ducts: cirrhosis, primary biliary: case report	490
common bile duct, obstruction of, as a complication of duodenal diverticulum	51
pancreas: parathyroid adenoma in association with pancreatic calcification	519
stomach and esophagus: hiatal hernia, the importance of	494
stomal cancer, a complication after gastroenterostomy ..	9
Genito-urinary system: kidneys and ureters: ureteral obstruction as a late complication of abdominal aneurysm resection	516

urinary tract, radiographic examination of	119	Speech: language failure in your children	188
renal cell carcinoma with solitary pulmonary metastasis (tumor conference)	54	Student thesis:	
sexual immaturity in the female	477	cardiac arrest and resuscitation in general practice	388
uterus and vagina: therapeutic trial of a new combination of agents for vaginitis	422	gout, the effect of colchicine on purine metabolism in	352
Gerontology:		hemochromatosis, idiopathic	296
aging, the problems of	384	macroglobulinemia, Waldenstrom's: physiopathologic mechanisms of symptom production in	106
medical care for the aged	280	purpura, thrombotic thrombocytopenic	59
Gout, the effect of colchicine on purine metabolism in (thesis)	352	regional perfusion utilizing an extra-corporeal circuit: a new technique for the chemotherapy of cancer	238
Grenz ray therapy	335	resins, cation exchange, in hyperkalemia	201
Hearing, screening tests of, for infants	522	thyroid, carcinoma of, following x-ray therapy in infancy	21
Heart disease: a report of a survey in the state of Kansas	417	Teenager, problems of the	222
Hematology:		To serve the physician	93
agranulocytosis following Monase therapy	338	Tuberculosis:	
hemochromatosis (CPC)	12	skin testing programs for school children	123
hemochromatosis, idiopathic (thesis)	296	Tumor conferences:	
macroglobulinemia: clinical case with discussion as to differential diagnosis	4	bronchial adenoma	196
macroglobulinemia, Waldenstrom's: physiopathologic mechanisms of symptom production in (thesis)	106	carcinoid syndrome	531
mimicry of infectious mononucleosis and malignant lymphoma	467	renal cell carcinoma with solitary pulmonary metastasis ..	54
purpura, thrombotic thrombocytopenic (thesis)	59	Tumors:	
Hemochromatosis (CPC)	12	multiple malignancies: report of a case of carcinoma of the colon and multicentric lymphosarcoma with recovery ..	99
Hiatal hernia, the importance of	494	regional perfusion utilizing an extra-corporeal circuit: a new technique for the chemotherapy of cancer (thesis) ..	238
History of medicine:		stomal cancer, a complication after gastroenterostomy ..	9
Hertzler, Arthur E., the Kansas horse and buggy doctor: a biographical sketch	424	thyroid, carcinoma of, following x-ray therapy in infancy (thesis)	21
MacKenzie, Sir James (1853-1925): a method of investigation	525	Vaginitis: report of therapeutic trial of a new combination of agents	422
physical diagnosis in antiquity	497	Wounds, abdominal, infected: a simple procedure which has helped in treatment	387
Hypnosis: its use in general practice	1		
Infections: wounds, abdominal, infected: a simple procedure which has helped in treatment	387		
Kansas Medical Society:			
annual session:			
committee reports	155		
councilor reports	151		
proceedings	249, 314		
program	140-149		
results of elections (Society & specialty groups)	313		
committee reports: maternal mortality	509, 536		
committees for 1962-63	267		
Kansas press looks at medicine	33, 72, 172, 211, 266, 310, 358, 401, 449, 545		
Kansas University Medical School: special issue (March) ..	77-105		
Macroglobulinemia, clinical case with discussion as to differential diagnosis	4		
Medical care for the aged	280		
Mimicry of infectious mononucleosis and malignant lymphoma ..	467		
Mirror or Mirage: some lay criticisms of the medical profession	371		
Multiple malignancies: report of a case of carcinoma of the colon and multicentric lymphosarcoma with recovery ..	99		
Neuro-psychiatry:			
accelerated auriculoventricular conduction in psychiatric patients	292		
brachial arteriography, its value in cerebrovascular insufficiency	481		
cerebral lipidoses and demyelinating diseases	377		
functional illness in general medicine: case report	225		
hypnosis: its use in general practice	1		
Nurses return to work	91		
Obstetrics: progesterone-like hormones for prevention of fetal loss	288		
Open heart surgery: aortic cardiac fistulas; ruptured sinus of Valsalva	44		
Pediatrics and changing diseases of children	275		
Physical diagnosis in antiquity	497		
Poison control center, the functions of	89		
Poison control center reports:			
activities at K.U.M.C., a summary of	535		
Clorox, boric acid, castor bean, Noludar, Prestone	350		
Darvon, dieldrin and Nohudar	228		
Post-myocardial infarction syndrome: non-specific pericarditis complicating myocardial infarction	471		
President's message, the	25, 63, 111, 133, 207, 248, 304, 355, 397, 443, 501, 537		
Rabies: bats and rabies- the handling of bats and the people they bite	217		
Radiology:			
Grenz ray therapy	335		
urinary tract, radiographic examination of	119		
Respiratory system:			
lungs:			
bronchial adenoma (tumor conference)	196		
bronchiectasis, regression of, in the adult	513		
chronic bronchitis, a major respiratory disease	327		
Reticulo-endotheliosis (CPC)	341		
Rural preceptorship, a ten-year report on the K. U. program ..	81		
Sex hormones	179		
Skin:			
Grenz ray therapy	335		
skin testing programs, tuberculin, for school children	123		
		EDITORIALS	
		Analysis of the social security system	444
		Another loss to mourn	115
		Artificial insemination	398
		Evolution	208
		Health care for the aged	356
		Hospital beds in the United States	337
		Hospital standards	306
		Kansas Medical Society:	
		committee appointments	261
		plans and scopes	306
		M.D.'s responsibility to his state meeting, the	134
		Medical assistants circuit courses	307
		Medical education loan program	506
		Moral issue in social security coverage, the	29
		National foundation, the	64
		New social security bill	399
		Physician draft	65
		Post editor replies	116
		Proposed welfare program	27
		Self-employed individuals retirement act	504
		Senior citizens' health care	260
		Standardization for hospitals	538
		Thalidomide	399
		Vaccination assistance act of 1962	538
		OBITUARIES	
		Brakebill, Martin J.	511
		Bresette, James E.	369
		Brown, Thomas J.	549
		Brungardt, Balthaser A.	407
		Carey, Francis S.	407
		Coffman, Francis M.	273
		Cooper, Lawrence L.	549
		Cox, Wilfred	511
		Epstein, Carl M.	511
		Fechan, William J.	407
		Fegtly, Arthur W.	75
		Gage, Theodore S.	369
		Gansz, Albert A.	325
		Gillett, Wilbur G.	273
		Hassig, Cecil E.	456
		Haynes, Arthur H.	117
		Higgins, Bruce A.	456
		Kimbrough, Robert C.	177
		McClymonds, Robert C.	549
		McComas, Marmaduke D., Sr.	273
		Nelson, Barrett A.	325
		Nelson, William O.	177
		Norman, William G.	215
		Rollow, R. Herbert	215
		Russell, Marion F., Jr.	369
		Schoonhoven, R. Grover	117
		Spencer, Harold F.	325
		Taylor, Charles F.	75
		Vaughn, Clarence K.	273
		Vestle, Charles E.	325
		Weaver, T. Walker	117
		Zimmer, Louis K.	369

